AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT	1. CONTRACT ID CODE	PAGE OF PAGES
		1 \ 2

2. AMENDMENT/MODIFICATION NO. 0003	3. EFFECTIVE DATE 23-Jul-2003	4. REQUISITION/PURCHASE REQ. NO. N00174-03-R-0031A	5. PROJECT NO.(If applicable)

6. ISSUED BY CODE	N00174	7. ADMINISTERED BY (If other than item 6) CODE
NAVSEA INDIAN HEAD 101 STRAUSS AVE ATTN: MICHAEL BURCH 1141B BURCHML@IH.NAVY.MIL INDIAN HEAD, MD 20640-5035		**See Item 6**

8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)	X	9A. AMENDMENT OF SOLICITATION NO. N00174-03-R-0031
	X	9B. DATED (SEE ITEM 11) 23-May-2003
		10A. MOD. OF CONTRACT/ORDER NO.
		10B. DATED (SEE ITEM 13)
CODE FACILITY CODE		

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

[X] The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer [X] is extended, [ ] is not extended.

Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods:
(a) By completing Items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted;
or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE
RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN
REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter,
provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS.
IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

A.	THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.
B.	THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(B).
C.	THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
D.	OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor [ ] is not, [ ] is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)
  See Page 2

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)	16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)	
15B. CONTRACTOR/OFFEROR _____ (Signature of person authorized to sign)	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA BY _____ (Signature of Contracting Officer)	16C. DATE SIGNED 23-Jul-2003

EXCEPTION TO SF 30
APPROVED BY OIRM 11-84

30-105-04

STANDARD FORM 30 (Rev. 10-83)
Prescribed by GSA
FAR (48 CFR) 53.243

SECTION SF 30 BLOCK 14 CONTINUATION PAGE

The subject solicitation N00174-03-R-0031 is hereby amended as follows:

1.   Extend the closing date of the solicitation until 22 August 2003, 3:00 P.M.

2.   All questions submitted have been answered and provided. (See attachment (1)).

3.   **Section C**- Statement of Work, has been changed as results of questions submitted. (See attachment (2)).

4.   Appendix A, ATOS Technical Requirements is hereby provided as reference to questions submitted and revised statement of work. (See attachment (3)).

5.   **Section L** – Proposal Requirements has been changed as results of questions submitted. (See attachment (4)).

6. **Section M** – Evaluation Factors for Award has been changed as results of questions submitted. (See attachment (5)).

1.   Can we get a copy of the written requirements document?

No, offerors are not required to respond to a requirements document under this solicitation. Any requirement documents will become part of resulting task orders under this IDIQ contract.

2.   What are the differences in the solutions being sought for conventional ammunition, guided missiles and large rockets, and special weapons?

The Department of Defense is seeking a means to more effectively and efficiently allow ordnance managers the ability to accurately locate and continuously determine the status of individual munitions on a near real-time basis while simultaneously updating predictions of their future condition and performance with a high level of confidence.

The purpose of this IDIQ is to identify and award a contract that will assist Indian Head with their continued development of unique systems that provides specific data in a particular environment. These systems may or may not be compatible or applicable to other requirements. This requirement is based upon RFID/AIT/MEMS technology and other requirements shall be based upon this technology in order to be compatible. Specific task orders will further define the requirements of the government within the Scope of the Statement of Work.

3.   The following specifications do not include any physical specifications for the ATOS tag; what are the detailed specifications for the ATOS tag?

Advanced Technology Ordnance Surveillance (ATOS), which is a derivative of AIT, will consist of Radio
Frequency Identification (RFID) "tags" including multiple sensors; to include fixed, portable, and handheld readers; a pre-processor database; and appropriate software interfaces. The RFID tag will be credit-card-sized, affixed to designated ammunition containers or pallets. The tag is intended to be low-cost, disposable, and maintenance-free with a service life of at least five years. It will monitor environmental conditions by transmitting sensor data at user defined intervals. The tag stores data when not in communication with a reader. The tag will include temperature, humidity, and shock sensors and will allow for one (1) additional environmental sensor such as vibration. The readers will communicate with the tags and the pre-processor database. The readers will send data to the preprocessor database via a Local Area Network (LAN).

See Appendix A, task orders resulting from this solicitation will further define the specifications for system and components.

4.   What are the HERO requirements for the ATOS tag?

HERO tests: RF emitters must meet Hazards of Electromagnetic Radiation to Ordnance (HERO) safety standards. The current test consists of a pass-fail measurement of received voltage at a distance of four inches. According to test personnel, the voltage threshold corresponds to a 300 μW FSK emission at 433.92 MHz at that distance. Since the receiving antenna is not calibrated at this distance, we cannot calculate a "safe" power level at other frequencies, nor are we assured that a "pass" at four inches will allow us to place tags closer than four inches. It is possible that this test will be modified to allow a higher level. MIL-STD-461 requires that an RF emitter produce no more that 15% of the maximum no-fire stimulus (MNFS) to an electroexplosive device (EED). In practice, the most sensitive EED is used, whose MNFS is an induced current of 30 mA. Therefore, according to MIL-STD-461, an RF emitter cannot induce more than 4.5 mA

5.   What are the global frequency requirements for the ATOS tag?

ATTACHMENT (1)

The tag preferentially will use 2402 – 2480 MHz, a subset of the worldwide 2450 MHz ISM band. This band is available in nearly all parts of the world, and is relatively free of interference from shipboard emitters. Because range is not as great as at lower frequencies, the tag may also use 433.92 MHz, available in most parts of the world. If a dual-band tag is necessary, frequency selection for a given location will be set automatically by any reader.

In the preamble to Section C, the following is stated as the requirement for this RFP:

The purpose of this requirement is to provide engineering, development, manufacturing, installation and site support, testing, training, contractor maintenance and program management support for Advanced Technology Ordnance Surveillance (ATOS) using AIT with Radio Frequency Identification (RFID) and Microelectromechanical Systems (MEMS) and derivatives.

6. However, the following seems to state that the RFP also wants to procure an inventory management system. If so what are the detailed system requirements specifications for this inventory management system?

As defined in individual task orders, the contractor shall take the Government's requirement and assist in the analysis of the design to develop, document, test and implement an Automated Inventory Management Systems using Automated Identification Technologies (AIT) such as contact memory, bar code and Radio Frequency Identification (RFID) technologies, tags, interrogators, readers and antenna systems in order to develop a Government design for possible future competitive procurement

The purpose of this contract is to allow for a systematic progression from ATOS to an integrated inventory management system for DOD. Information technology enables and facilitates data collection and transmission to automated information systems (AISs). AIT can improve DoD's logistics business processes and enhance warfighting capability by facilitating the collection of initial source data, reducing processing times, and improving data accuracy. The use of AIT is a key component in DoD's efforts to provide timely visibility of all logistics assets, whether in-process (being procured or repaired), in-storage (being stored as inventory), or in-transit (being shipped to another location). AIT encompasses a variety of read and write data storage technologies that can be used to capture asset identification information. Those technologies include bar codes, magnetic stripes, integrated circuit cards, optical memory cards, and radio frequency (RF) identification tags. ATOS will use Radio Frequency identification (RFID) as the preferred AIT alternative to augment service Automated Information Systems ability to provide asset visibility for many ammunition/weapon containers, a user has to locate and redirect individual containers, or a user needs "stand-off, in-the-box" visibility of container contents, particularly in a forward area with an inadequate system or communication infrastructure. AIT also includes the hardware and software required to create the storage devices, read the information stored on them, and integrate that information with other logistics data. AIT devices offer a wide range of data storage capacities from a few characters to thousands of bytes. The information on each device can range, for example, from a single part number to a self-contained database. In the case of ATOS, devices can be interrogated using RF tags, with the information obtained from reader interrogations and provided electronically to AISs that support DoD's logistics operations. DoD's informational needs cannot be satisfied by just one AIT device. Because of the diversity of DoD's operating environments and the large number of commercial and military activities supporting its logistics requirements, DoD needs a suite of devices. Significant devices in the suite include (but are not limited to):
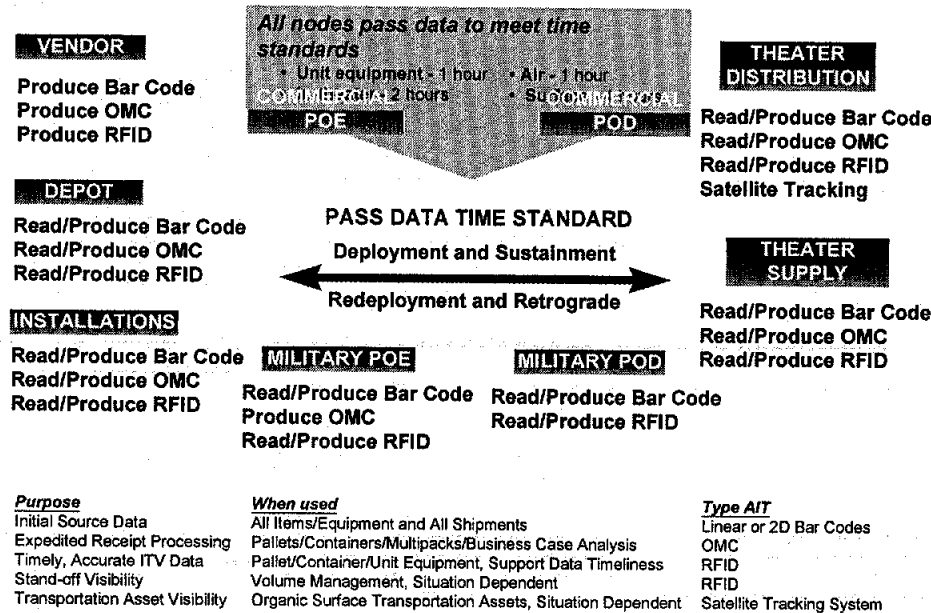
◆ linear bar codes,

◆ two-dimensional (2D) bar codes,

- ◆ optical memory cards (OMCs),

- ◆ radio frequency identification (RFID) tags, and

- ◆ satellite-tracking systems.

The DoD vision for AIT attains the optimum mix of technologies that allows each user to efficiently and effectively capture, aggregate, and transfer data and information in near real-time. Warfighting commanders-in-chief (CINCs) and their component commands require asset visibility and command and control throughout the DoD logistics pipeline. The CINCs must be able to track, identify, document, manage and control deploying forces, unit equipment, personnel, and sustainment cargo as these assets move to and through the battlefield and in operations other than war. The proposed CONOPS for using AIT to improve visibility of the status and location of logistics assets presents a major challenge for DoD in four primary areas—gaining acceptance and support from commercial vendors and ports, obtaining agreement from DoD Components on use of standard data elements and formats, integrating logistics AISs to share asset information, and obtaining the funding for implementation. These same challenges are also fundamental to DoD's efforts to provide military commanders with total visibility of their logistics assets.

Figure 1 provides an overview of the proposed DoD AIT CONOPS. It emphasizes a mix of AIT capabilities throughout the DoD logistics chain. If an existing AIS can meet user data timeliness requirements, its capability should be used. A variety of AIT can be used to facilitate the capture of data to help the AIS meet the data timeliness requirements as well as provide additional capabilities that cannot be provided by an AIS.

Figure 1. DoD's Concept of Operations for AIT

Purpose	When used	Type AIT
Initial Source Data	All Items/Equipment and All Shipments	Linear or 2D Bar Codes
Expedited Receipt Processing	Pallets/Containers/Multipacks/Business Case Analysis	OMC
Timely, Accurate ITV Data	Pallet/Container/Unit Equipment, Support Data Timeliness	RFID
Stand-off Visibility	Volume Management, Situation Dependent	RFID
Transportation Asset Visibility	Organic Surface Transportation Assets, Situation Dependent	Satellite Tracking System

Note: POE = point of embarkation, POD = point of debarkation, ITV = in-transit visibility.

7. What are the expected impacts of "to be developed" inventory management system on the existing DoD ammunition inventory management systems?

One objective of the ATOS program is to ensure full interoperability of all AIT devices (and AISs) throughout the logistics chain; continue to give priority to establishing functionality, communications

capabilities, and data timeliness standards among logistics AISs. The Program Management team at Indian Head has the responsibility for accessing the interoperability of proposed ATOS system(s) and determining the impact on existing DoD ammunition inventory management systems.

8. Since the Army is implementing SAP as its ERP and since the Army is the SMCA for ammunition, must this "to be developed" inventory management system interface with SAP?

The purpose of ATOS is to enhance the ability of existing systems to satisfies a need for an automated near real-time ammunition inventory visibility and management system. Joint Vision 2010/2020 and Joint Uniform and Service-specific Lessons Learned are replete with the need to more efficiently and effectively identify ammunition stocks and discern their material condition and specific configurations. A second major need that will be satisfied by ATOS is the ability to monitor and collect environmental data regarding storage and transportation conditions. The chemical stability, reliability, and effectiveness of energetic components in ammunition are heavily influenced by their thermal experience. The collected data can be used to more effectively define and validate shelf/service life and identify assets that may have exceeded an established threshold. It is the intention of all programs tasks under this resulting contract to interface with all existing DoD systems to the fully extent possible.

9. If so, what modules of SAP will be used as the interface?

This has not been determined since the "to be developed" inventory management systems is still in development, however, it is the intention of all programs tasks under this resulting contract to interface with all existing DoD systems to the fully extent possible.

10. What are the conditions for accepting a Commercial Off The Shelf (COTS) Inventory Management System?

The ability of a system to meet government requirements of the basic contract Statement of Work, particularly sections 3.1 and 3.2 and a specific task order under the resulting contract(s).

11. How will this to be developed Inventory Management System be integrated with the USA's Munitions Transportation Management System, SAAS-MOD, Army War Reserve Deployment System (AWRDS), Army Battlebook System, the USN ROLMS and CAIMS, and the USAF CAS?

The purpose of ATOS is to enhance the ability of existing systems to satisfies a need for an automated near real-time ammunition inventory visibility and management system. Joint Vision 2010/2020 and Joint Uniform and Service-specific Lessons Learned are replete with the need to more efficiently and effectively identify ammunition stocks and discern their material condition and specific configurations. A second major need that will be satisfied by ATOS is the ability to monitor and collect environmental data regarding storage and transportation conditions. The chemical stability, reliability, and effectiveness of energetic components in ammunition are heavily influenced by their thermal experience. The collected data can be used to more effectively define and validate shelf/service life and identify assets that may have exceeded an established threshold. It is the intention of all programs tasks under this resulting contract to interface with all existing DoD systems to the fully extent possible.

12. Without this detailed information being stated as a requirement in the RFP, how will contractors show that they posses the requisite knowledge, skills, and abilities?

From the revised Section L:

The following factors, listed in order of importance, shall be used to evaluate offers:

	Assigned Weight
Experience	30%
Micro-electromechanical Systems (MEMS) design capabilities	25%
Radio Frequency Identification (RFID) reader design capabilities	20%
Application Specific Integrated Circuit (ASIC) design capabilities	15%
Test Capabilities	10%
Past Performance	As Set Forth Herein
Cost/Price	Not Scored

1.0   Experience:

The Offeror shall provide a narrative summary of the Automatic Identification Technology (AIT) work that your facility has done in the past or is currently working on. Specifically address your relevant experience in performing AIT work similar in size and complexity to Advanced Technology Ordnance Surveillance (ATOS) as described in the Statement of Work with respect to the following items, which have equal weight:

> AIT System Design, and Development as defined in SOW 3.1
> AIT Systems Engineering as defined in SOW 3.2
> AIT Integration Engineering as defined in SOW 3.3
> AIT Implementation as defined in SOW 3.5

2.0   Micro-electromechanical Systems (MEMS) design capabilities as defined in SOW paragraphs 3.1.5 , 3.4.1, and has applications throughout the SOW:

> The Offeror shall describe their MEMs design capability and how this will meet the requirements for an RFID system with sensor integration and a database to track IDs and sensor data.

3.0   Radio Frequency Identification (RFID) reader design capabilities as defined in SOW paragraphs 3.1.1, 3.1.4, 3.1.5, 3.4.1, and has applications throughout the SOW:

> The Offeror shall provide a narrative summary of their RFID reader design capabilities to include fixed, portable, and handheld readers. The Offeror shall describe the function and complexity of their designed RFID readers to include fixed, portable, and handheld readers.

4.0   Application Specific Integrated Circuit (ASIC) design capabilities as defined in SOW paragraph 3.4.1 and has applications throughout the SOW:

> The Offeror shall describe their ASIC design capabilities and how this will meet the requirements for Automatic Identification Technology (AIT). The Offeror shall describe the function and complexity of the hardware/devices as it relates to their ASIC design.

5.0   Test capabilities as defined in SOW paragraphs 3.5.1 and 3.6:

> 5.1   The Offeror shall describe their testing capabilities in testing AIT technology and devices. The Offeror shall provide a narrative summary of their relevant experience in testing AIT devices of similar size and complexity to the ATOS system. The narrative shall include a description of relevant devices tested, the type and scope of testing the Offeror performed on the devices, the equipment used in the testing, and the Offeror's responsibility for testing, collecting data, interpreting the data, assessing the impact of anomalies, and reporting the results. The Offeror shall describe the testing facilities to include the general description, size, location of the testing facility and its distance from other facilities (if not at the same contiguous site), age of the testing facility, equipment, and other relevant information.

13. Moreover, how will the source selection committee evaluate a contractors ability to accomplish the development and creation of the Inventory Management System?

In accordance with revised Section M:
The Offerors' submission in response to Factors 1, 2, 3, 4, and 5 shall be reviewed by the technical review team. Each factor shall be reviewed based on the merits of the information contained in the Offerors' submission. The technical review team will only examine technical material contained within Volume I. Each factor shall be reviewed and assigned a score for each of the following areas:

Factor 1- Experience
Factor 2 – Micro-electromechanical Systems (MEMS) design capabilities
Factor 3 – Radio Frequency Identification (RFID) reader design capabilities
Factor 4 – Application Specific Integrated Circuit (ASIC) design capabilities
Factor 5 – Test Capabilities

The scoring will be based on the information provided and in accordance with the information in Section L and contained in the answer to question 12.

14. If a contractor already owns the Intellectual Property being offered as a solution for the ATOS requirements, what are the impacts of the following statement?

"The contractor shall not be responsible for determining patent or intellectual property ownership rights."

It is the intention of the government to own all data rights, however, this can be further evaluated and determination made during the performance of the task orders under this contract.

15. In the initial contracting effort PM ATOS through Coalescent Technologies procured prototype RFID tags for the ATOS requirement. We thought this RFP would be for the follow-on procurement of the ATOS tag; however, the following seems to suggest that there will be another competitive procurement based on the work completed for this RFP. Please explain what the full and complete ATOS program will cover over what period of time.

The purpose of this resulting contract is to assist the government with this continued effort that was started through the above effort. The follow-on procurements have not been defined at this time.

16. Given the following is what the contractor will do, what will the possible future competitive procurement include that has not been accomplished by the work performed under the aegis of this RFP?

"The purpose of this requirement is to provide engineering, development, manufacturing, installation and site support, testing, training, contractor maintenance and program management support for Advanced Technology Ordnance Surveillance (ATOS) using AIT with Radio Frequency Identification (RFID) and Microelectromechanical Systems (MEMS) and derivatives. Typical tasking shall include AIT system design and development, systems engineering, integration engineering, technical analysis, implementation, test and evaluation, logistics engineering, analysis and documentation support, and program management support services."
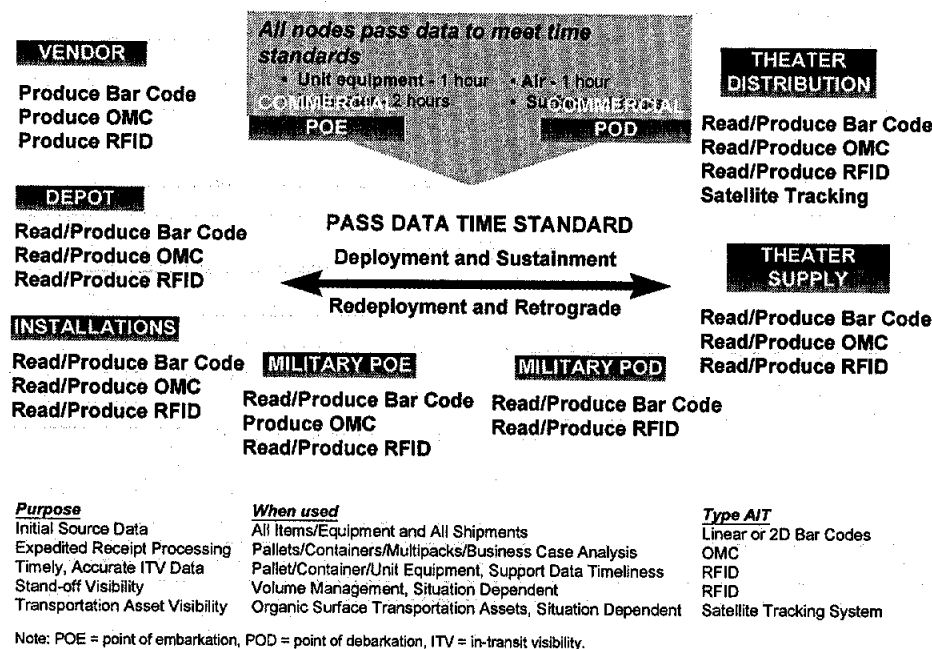
The follow-on procurements have not been defined at this time.

17. In paragraph 3.1.1, reference is made to the work shall include "asset tracking systems."

Asset tracking systems consist of a means and capability to collect initial source data to provide visibility of all logistic assets, whether in-process (being procured or repaired), in-storage (being stored as inventory), or in-transit (being shipped to another location). ATOS is an example of an asset tracking system and as such asset tracking systems are part of this statement of work.

18. What are the requirements for the asset tracking system?

Requirements for an asset tracking system emphasizes a mix of AIT capabilities throughout the DoD logistics chain. If an existing AIS can meet user data timeliness requirements, its capability should be used. A variety of AIT can be used to facilitate the capture of data to help the AIS meet the data timeliness requirements as well as provide additional capabilities that cannot be provided by an AIS.

VENDOR
Produce Bar Code
Produce OMC
Produce RFID

All nodes pass data to meet time standards
• Unit equipment - 1 hour   • Air - 1 hour
COMMERCIAL 2 hours   • SUBCOMMERCIAL
POE   **POD**

THEATER DISTRIBUTION
Read/Produce Bar Code
Read/Produce OMC
Read/Produce RFID
Satellite Tracking

DEPOT
Read/Produce Bar Code
Read/Produce OMC
Read/Produce RFID

PASS DATA TIME STANDARD
Deployment and Sustainment

◄──────────────────►

Redeployment and Retrograde

THEATER SUPPLY
Read/Produce Bar Code
Read/Produce OMC
Read/Produce RFID

INSTALLATIONS
Read/Produce Bar Code
Read/Produce OMC
Read/Produce RFID

MILITARY POE
Read/Produce Bar Code
Produce OMC
Read/Produce RFID

MILITARY POD
Read/Produce Bar Code
Read/Produce RFID

Purpose	When used	Type AIT
Initial Source Data	All Items/Equipment and All Shipments	Linear or 2D Bar Codes
Expedited Receipt Processing	Pallets/Containers/Multipacks/Business Case Analysis	OMC
Timely, Accurate ITV Data	Pallet/Container/Unit Equipment, Support Data Timeliness	RFID
Stand-off Visibility	Volume Management, Situation Dependent	RFID
Transportation Asset Visibility	Organic Surface Transportation Assets, Situation Dependent	Satellite Tracking System

Note: POE = point of embarkation, POD = point of debarkation, ITV = in-transit visibility.

19. What are the impacts of this asset tracking system on the existing DoD TAV network?

This will be evaluated by the government team throughout the development process.

20. How will this asset tracking system interface with the GTN, JTAV, Army TAV, and the Army's ITV servers?

This will be evaluated by the government team throughout the development process.

21. What will be used to evaluate that potential contractors have related experience in asset tracking?

Refer to Sections L and M of the solicitation and paragraph 3.1.1 of the SOW.

22. What prerequisites must a COTS asset tracking system meet?

COTS AIT components, readers, scanners, tags, software and other components will be evaluated by the contractor and government team in accordance with 3.1.8 as part of the development process assessment of available COTS systems.

23. What is meant by "order/utilization systems and components?"

These are attributes of an asset tracking system and refers to usage and restocking tasks.

24. What is meant by "remote sensing?"

The ability to automatically or remotely query the system to gather information via a sensing system (in this case using RFID) and have that information transmitted to a system.

*25. What are the characteristics of a "highly distributed world-wide logistic management systems?"

A "highly distributed world-wide logistic management systems" refers to the DoD's efforts to provide timely visibility of all logistics assets, whether in-process (being procured or repaired), in-storage (being stored as inventory), or in-transit (being shipped to another location world-wide). AIT encompasses a variety of read and write data storage technologies that can be used to capture asset identification information. Those technologies include bar codes, magnetic stripes, integrated circuit cards, optical memory cards, and radio frequency (RF) identification tags. AIT also includes the hardware and software required to create the storage devices, read the information stored on them, and integrate that information with other logistics data. AIT devices offer a wide range of data storage capacities from a few characters to thousands of bytes. The information on each device can range, for example, from a single part number to a self-contained database. In the case of ATOS, devices can be interrogated using RF tags, with the information obtained from reader interrogations and provided electronically to AISs that support DoD's logistics operations. DoD's informational needs cannot be satisfied by just one AIT device. Because of the diversity of DoD's operating environments and the large number of commercial and military activities supporting its logistics requirements, DoD needs a suite of devices.

*26. What are the characteristics of an "automated data collection systems?"

ATOS is an example of an "automated data collection system," it will demonstrate an automated joint munitions inventory surveillance capability which will allow theater logisticians to monitor the environment and distribution of selected critical and/or high-mobility munitions. ATOS will monitor the temperature, humidity, and shock history of munitions with automated transmission to a data warehouse at selected intervals, providing ordnance technicians insight into whether selected munitions have been exposed to conditions which may adversely impact their reliability. ATOS data will allow logisticians to track selected munitions in transit from storage environment to operating units using existing databases.

27. What are the differences between an automatic data collection system and an automated data collection system?

No difference, we will change automatic to automated in the SOW.

28. What are the differences between an "automated data collection system" and an automated environmental data collection/data reduction system?

This refers to the characteristics of a system, the automated environmental data collection/data reduction system is a more defined automated data collection system. Obviously the key words are environmental and data reduction which further define the system's capabilities. The intent of the government is to further define these characteristics in resulting task orders under this contract.

29. What is an automated identification system?

A system that continuously queries and collects data from tagged assets.

30. How does it differ from an automatic identification system?

They are the same.

31. Moreover, how will the source selection committee evaluate a contractors abilities and related experience in all of these different types of collection systems?

Based on information provided in accordance with Section L and M in order to perform sections 3.1, 3.2, and 3.3 of the SOW.

32. What will be used to evaluate that a contractor posses the knowledge, skills, and abilities to conduct "research and analysis of emerging technologies in logistics and communications, including the security of data communication?"

Based on information provided in accordance with Section L and M in order to perform sections 3.1.1 of the SOW.

33. What will be used to evaluate that a contractor has expertise in the following?

"Automated identification and asset management system applications will include: munitions accounting; weapon systems components accounting; smart store rooms; identification and asset management of components, assemblies or weapon systems; location and tracking of components, support equipment, tool/inventory control; training equipment; inventory/location and management of spare parts; vehicle and personnel identification; remote environmental data collection; access control and security; logistics and supply chain management; and ATOS."

Based on information provided in accordance with Section L and M in order to perform sections 3.1.2 of the SOW.

The following presents a hosts of questions.

"Assist the Government in the evaluation of the awarded contractor's developed prototypes to enhance

global combat services support information management, read/write designs for electronic tags, anti-collision schema, communication requirements, data encryption, data security, and system accuracy. As part of this effort the contractor may be required to develop technologies which improve inventory control, accuracy, and reporting with automated decision support processes to enhance battlefield distribution objectives."

34. When will the government select the "awarded contractor?"

This refers to the contractor(s) that are awarded an IDIQ contract under this solicitation.

35. When will the "awarded contractor" develop the prototypes that will be evaluated?

After award of the IDIQ contract and determined by the individual task orders.

36. What are the prototypes that will be evaluated?

This refers to prototypes built to government specifications by the successful offeror(s) to this solicitation.

37. What is meant by "global combat services support information management?"

This refers to the application of the resulting system and further defines the capabilities being sought by systems such as ATOS.

38. How does this "global combat services support information management" differ from GCCS, GCSS, and GTN?

"Global combat services support information management," in paragraph 3.1.3, refers to the concept of operations, not a specific existing system. Though "global combat services support information management" may be part of many existing systems, GCCS, GCSS, and GTN, its use was not intended to implicate these systems.

39. What are the "read/write designs for electronic tags?"

These are specific characteristics that being sought in the design of the electronic tags for desired system results.

40. What are the specifications for "anti-collision schema?"

These are specific characteristics that being sought in the design of the electronic tags for desired system results. (multiple tags in a confined area and in close proximity)

41. What are the "communication requirements?"

These are specific characteristics that being sought in the design of the electronic tags and collection capability for desired system results.

42. What is meant by "data encryption, data security, and system accuracy?"

These are specific characteristics that being sought in the design of the electronic tags for desired system results.

43. In the first sentence the contractor will perform evaluations of "awarded contractors" prototypes. In the last sentence, "the contractor may be required to develop technologies which improve inventory control, accuracy, and reporting with automated decision support processes to enhance battlefield distribution objectives." How can the same contractor evaluate the "awarded contractor" prototypes and be required to develop the same technologies?

The intention of the evaluation of "awarded contractor" systems was to have the contractor prove for government acceptance that their system meets the performance specifications and requirements of the SOW and task order.

44. How will the contractors abilities to accomplish the evaluation of "awarded contractor" and design technologies be evaluated by the source selection committee?

Based on information provided in accordance with Section L and M in order to perform sections 3.6 of the SOW.

Paragraph 3.1.4 states, "Provide engineering and technical support for the contractor's developed system in the areas of system integration, test and evaluation, training, life cycle maintenance and logistic support of various AIT requirements, programs and projects.

45. What is "the contractor's developed system?"

This is the system that is developed by the contractor for the government and in accordance with specifications in the individual task orders.

46. Does contractor refer to the "awarded contractor" or to the contractor that wins this RFP?

Yes

47. What will be used to evaluate a contractor's experience in AIT "system integration, test and evaluation, training, life cycle maintenance and logistic support/"

Based on information provided in accordance with Section L and M in order to perform sections 3.1.4 of the SOW.

Paragraph 3.1.5 states "3.1.5 Provide design, development, documentation and installation of remote autonomous microelectronics sensors and associated equipment using Micro-electromechanical Systems (MEMS), spread spectrum, frequency agile, active and passive RFID tags; and the integration to sophisticated large-scale data base management systems for sensing, tracking and reporting logistical elements for military materials, munitions, spare parts or any other high value asset.

48. This seems to say that the IHD/NSWS wants a contractor to create a lot more than the ATOS tag and provide program support from this RFP. The winning team must offer the abilities to create and deign all products on the AIT II and RFID II contracts and many other specific DoD procurements plus be a team that posses the experience to integrate all of these technologies into "sophisticated large-scale data base management systems for sensing, tracking and reporting logistical elements for military materials, munitions, spare parts or any other high value asset." What exactly is being

asked for in this paragraph." What exactly is the expected deliverables for this paragraph?

To assist the government in the design of a system, not just the components of the system. The expected deliverable will be determined by the success of the demonstrations of component and system capability.

Paragraph 3.1.6 states, "Design, develop, implement and provide technical support to systems which provide automatic collection, storage retrieval, processing, transmission, and data reduction utilizing desktop computers, scanners, wireless and hand-held smart systems, microcircuit devices, smart cards, voice recognition systems, RF based identification technologies, satellite based transportation tracking, and remote sensing and reporting."

49. The above seems to be a restatement of the 3.1.5. What are the specific differences between the requirements for paragraph 3.1.5 and 3.1.6?

There are distinct differences in the paragraphs, 3.1.5 refers more to the MEMS and RF technologies, where 3.1.6 refers more to the integrated solution. The purpose is to establish the parameter for work to be performed under individual task orders with specific design requirements of the government.

50. What is wanted in paragraph 3.1.7?

This paragraph merely states the contractor's responsibility to adhere to existing standards and agreements for AIT systems developed under this contract.

51. Paragraph 3.1.8 seems to be an all inclusive requirement that duplicates paragraphs 3.1.1 through 3.1.7. What is being asked for in this paragraph that is not already stated in the preceding 3.1paragraphs?

The paragraphs are not meant to be used as a descriptive summary of a single requirement, but more to establish the parameter for work to be performed under individual task orders with specific design requirements of the government.

52. Paragraph 3.2 calls for "Systems engineering support for the awarded contractor's developed systems." This entire paragraph seems to be asking for life cycle system engineering design, development, implementation and sustainment for the awarded contractor's developed systems. When will the "awarded contractor's developed systems" be delivered and under what contract vehicle were these systems procured?

The last sentence in Paragraph 3.2.1 states, "Development includes the integration of contractor developed and/or contractor acquired components with Government-provided components into functional systems in accordance with the documented performance baseline."

53. What are the "Government-provided components" referenced?

Paragraph 6.0 of the statement of work "The Government shall furnish all equipment and information necessary to enable the contractor to perform engineering, development, manufacturing, testing and training efforts, as may be required in the execution of specific task requirements. The Government will furnish the contractor applicable information and other related documentation required to complete assigned tasking. Individual task orders shall specify the Government Furnished Equipment and Information to be issued."

54. What are the functional specifications that define the "functional system"?

The "functional system" encompasses a variety of read and write data storage technologies that can be used to capture asset identification information. Those technologies include bar codes, magnetic stripes, integrated circuit cards, optical memory cards, and radio frequency (RF) identification tags. ATOS will use Radio Frequency identification (RFID) as the preferred AIT alternative to augment service Automated Information Systems ability to provide asset visibility for many ammunition/weapon containers, a user has to locate and redirect individual containers, or a user needs "stand-off, in-the-box" visibility of container contents, particularly in a forward area with an inadequate system or communication infrastructure. AIT also includes the hardware and software required to create the storage devices, read the information stored on them, and integrate that information with other logistics data. AIT devices offer a wide range of data storage capacities from a few characters to thousands of bytes. The information on each device can range, for example, from a single part number to a self-contained database. In the case of ATOS, devices can be interrogated using RF tags, with the information obtained from reader interrogations and provided electronically to AISs that support DoD's logistics operations. DoD's informational needs cannot be satisfied by just one AIT device. Because of the diversity of DoD's operating environments and the large number of commercial and military activities supporting its logistics requirements, DoD needs a suite of devices. Significant devices in the suite include (but are not limited to):

- ◆ linear bar codes,

- ◆ two-dimensional (2D) bar codes,

- ◆ optical memory cards (OMCs),

- ◆ radio frequency identification (RFID) tags, and

- ◆ satellite-tracking systems.

The vision for AIT attains the optimum mix of technologies that allows each user to efficiently and effectively capture, aggregate, and transfer data and information in near real-time. Warfighting commanders-in-chief (CINCs) and their component commands require asset visibility and command and control throughout the DoD logistics pipeline. The CINCs must be able to track, identify, document, manage and control deploying forces, unit equipment, personnel, and sustainment cargo as these assets move to and through the battlefield and in operations other than war. The proposed CONOPS for using AIT to improve visibility of the status and location of logistics assets presents a major challenge for DoD in four primary areas—gaining acceptance and support from commercial vendors and ports, obtaining agreement from DoD Components on use of standard data elements and formats, integrating logistics AISs to share asset information, and obtaining the funding for implementation. These same challenges are also fundamental to DoD's efforts to provide military commanders with total visibility of their logistics assets.

55. Where is the "documented performance baseline" located?

The documented performance baseline refers to the requirements of systems developed under this contract and as they are developed will be provided as part of individual task orders. An example of "a" performance baseline (not "the" performance baseline) is the ATOS requirements. Appendix A can be used as an "example," of a performance baseline for ATOS.

Paragraph 3.2.4 states "The contractor may be required to fabricate prototypes for test and evaluation. This may require the construction, assembly, fabrication, test and delivery of components or complete systems developed by the contractor."

56. What quantity and timeline is required for prototype delivery?

ATOS Components and Interrelationships
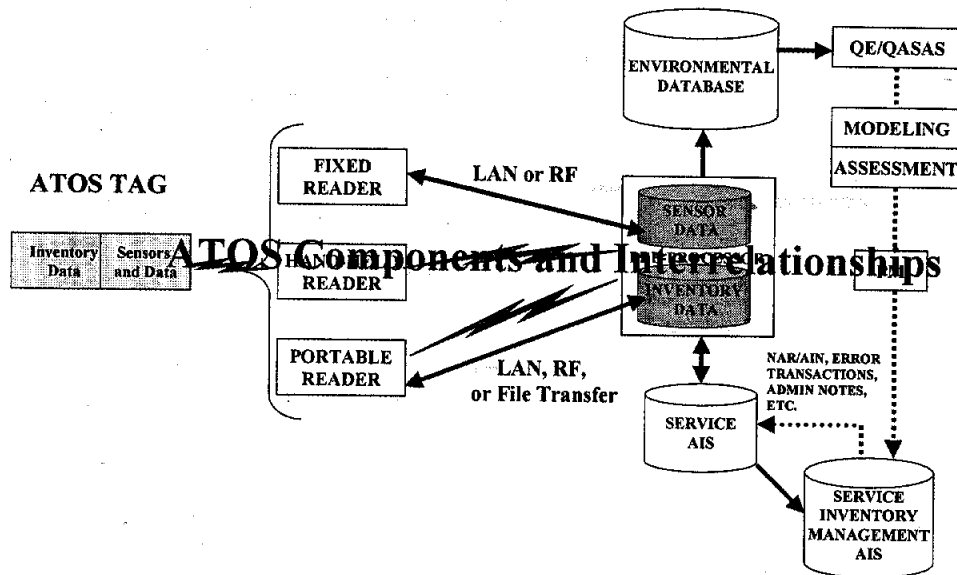
Most prototype requirements for ATOS will be near term, within the first year of the contract and consist of small quantities depending on the component (i.e., readers in the 5 –10 each range, tags in the 100 – 1000 each range). However, new requirements for prototypes for other derivatives of the system may be required in the out years of the contract.

57. What are the components of the "complete system"?

For the most part this is a "to be determined" requirement during the development process, however a typical ATOS system may have the components illustrated below:

The first sentence in Paragraph 3.2.5 states, "The contractor may be required to develop software as part of their system design and integration."

58. What is the scope and required functionality of the software referenced in paragraph 3.2.5?

The main purpose of the software, if required, would be to integrated the system together to make it functional. This would include the integration of new system components with existing legacy systems that may already exist.

59. Is Paragraph 3.2.5 asking for development of software to support all of the applications identified in 3.1.2?

The primary objective would be to integrate the components of the target system, such as ATOS. A goal maybe to integrated ATOS with other existing legacy systems.

60. To/from what software systems is integration required "as part of their system design and integration"?

This would be dependent on the components chosen by the government and contractor team. The above illustration in the answer to question 57 should provide some indication of the extent of software integration between the components of the system. An appropriate number of engineering hours have been included as part of the contract for these efforts.

61. Are there any middleware standards currently in use with any of these software systems? If so, what are these standards?

Not that we are aware of at this time.

The second to last sentence in Paragraph 3.3 states, "Integration engineering may be required for contractor developed systems and system modernization via the removal of obsolete components and subassemblies, and replacement with modern, supportable counterparts."

62. What are "modern, supportable counterparts"?

This refers to a concept of modernization through spares, where in the design of the system allows for replacement of individual components with the latest technologies without having to perform major changes to the system for the components to be accepted. This will be determined at a later time on individual tasks orders

63. Are there existing RFID and/or MEMS components that are considered to be "obsolete"? If so, please identify these components.

No, this is just desired result of the design of the system.

The first sentence is Paragraph 3.4 states, "Independent technical analysis support may be requested under this contract to support Advanced Technology Ordnance Surveillance (ATOS) using AIT with Radio Frequency Identification (RFID) and Microelectromechanical Systems (MEMS) and derivatives."

64. Does "independent" mean that the technical analysis support is to be performed by someone other than the winner of this RFP?

No, this is scope to allow the successful offeror to assist the government with analysis of government design and documentation.

The last sentence in Paragraph 3.5.1 states, "The contractor may be required to assess spares inventories, develop inventories, maintain such inventories, develop/maintain maintenance logs and maintenance documentation, develop maintenance plans/programs, and utilize / procure special tools and special test equipment."

65. What is meant by "develop inventories"?

This refers to spares for the developed system (such as ATOS) and system component that would be necessary to keep in inventory to maintain the system.

66. What is meant by "maintain such inventories"?

To keep track of the inventory for the government during the contract performance period.

67. Is this a new requirement or a follow-on?

This is a new requirement.

68. Is there an incumbent contractor?

No, Indian Head has used some contracted resources to further develop the ATOS design, but this is a first time contract directly related to RFID and ATOS requirements.

69. (a) Is the Government providing any on-site (Government) facility space for the ATOS contractor?

(b) Given this is an IDIQ contract, what percent of base labor or amount of square footage should be assumed by offerors for pricing purposes?

No, would do not anticipate providing Government facility space for contractor use.

70. The Wage Determination included in the solicitation is 94-2103 Rev. 24 dated 5/31/01. The most recent revision to this WD is revision 28 dated 10/04/02. Will the government be providing an updated Wage Determination in the RFP or should offerors use revision 24 that is included?

Yes, the government will incorporate the most recent WD at time of award. The WD incorporated will depend on the offeror receiving the award.

71. Section L(I)(C), Volume III, Cost/Price Information: Please clarify what is meant by "A statement of any other labor categories and related qualifications between any category established herein and the category normally used" (found on page 81 of 100).

For example: The RFP lists the labor categories of SR. Engineer and Jr. Engineer. If the offeror has 5 (internal) categories of Engineer, should the offeror provide a statement (or list) of its (internal) labor categories for Engineer if not proposed for the RFP Engineer labor categories?

This is explained very clearly in the solicitation, the purpose of this statement is to provide offerors the opportunity to use their existing titles for labor categories in lieu of the titles provided. In doing this, the contractor must provide descriptions of the labor categories that are different from the solicitation and a cross-reference matrix between their labor categories and the labor categories in the solicitation to demonstrate how the requirements are being met.

72. Can you tell me if the small business goals, wosb, hubzone, etc. goals (%) are to be based on the total offer or the total dollars proposed for subcontracting (labor and material)?

It is based on the total offer.

73. Is the solicitation set-aside for small business only?

No, this requirement if full & open competition. Note: In the event where the Government elect to make a multiple award, the Government reserves the right to award one award to small business in accordance with the solcitation.

74. RFP states: ONE COPY OF YOUR COST PROPOSAL SHALL BE SENT TO YOUR COGNIZANT DCAA CONCURRENT WITH THE SUBMISSION TO THE PROCURING CONTRACTING OFFICER.

Please provide contact information for our "COGNIZANT DCAA".

DCAA offices are regional and the offeror is responsible for determining the local or cognizant DCAA office.

75.   RFP States: "State the source and date of acceptance of adequacy of the Offeror's accounting system."

We need to understand the criteria by which we gain "acceptance of adequacy".

This should be the results of a DCAA audit.

76. In Section C under "Notes" definitions are provided, including one for the term, "contractor".

Does this definition also apply to the term, "offeror" found in Section L and M?

Yes

The phrase, "Awarded Contractor's Systems", is used several times in this Solicitation. Please confirm that this refers to a separate solicitation to be Competed and awarded at some future date.

The term "Awarded Contractor's Systems", means the successful offeror(s) of the solicitation.

77. Page 75 of 100, HQ L-2-005, Notification of Potential Organizational Conflict of Interest, appears to be incomplete. The second sentence states "Of primary concern are those contractual arrangements in which the Offeror provides support to _____, or related labortories.

NAVSEA Indian Head Divisioin

78. Page 86 of 100, Paragraph D, Volume IV – Small Business Subcontracting Plan: Please clarify if the Navy's subcontracting goal of "23% of the effort for Small Business" means 23% of the subcontracted effort.

Yes

79. In speaking with the ATOS program office, I understand that there is an interested Parties and/or a bidder's mailing list for the program identified in my subject line. Would it be possible to have you send me a copy?

All interested parties have been sent a copy of the bidder mailing list via e-mail.

80. Given the IDIQ nature of the contract and the absence of work scope related to Manufacturing or assembling, it would appear that the HQ-L-2-0004 Make-or-Buy Program clause is not applicable to this procurement. It is recommended that this requirement be deleted from Section L of the solicitation.

Applicable to all competitive procurements greater than $5M.

81. Conflict of Interest clause HQC-2-0037 Organizational conflict of interest (NAVSEA) (JUL2000) covered on pages 22-24 the RFP.

P(b) RFP states: The contractor warrants.......does not have any organizational conflict of interest...............

P(e) RFP states: "The Contractor further agrees that during the performance of this contract and for a period of three years after.....the Contractor shall not furnish to the US Government....any system, component or services which is the subject of the work to be performed under this contract.

Paragraph (e) language would appear to preclude any winning contractor from being able to supply material if they are participating in the final design efforts under this RFP. Is this interpretation correct?

This is a standard clause. Paragraph (j) clearly states that any pre-existing product lines are exempt from this clause.

82. Page 10 of 100, Section C. SOW, Paragraph 3.0: What is the Government's intent of – "The contractor shall not be responsible for determining patent and intellectual property ownership rights" as it relates to the Section I FAR and DFAR Data Rights clauses?

It is the Government's intent to preclude an offeror from using its existing intellectual property (ownership rights to such IP have already been established) in the performance of this contract?

Same as #81

83. Page 23 of 100, Section C, HQC-2-0037 Organizational Conflict of Interest, Paragraph (e): Under what circumstances would authorization not be provided to the Contractor to participate in subsequent procurement(s) for the same system, component, or service?

Same as #81

STATEMENT OF WORK
ENGINEERING AND DEVELOPMENT
AUTOMATED IDENTIFICATION TECHNOLOGY

1.0   GENERAL

1.1   Introduction

The Indian Head Division, Naval Surface Warfare Center, (IHD/NSWC) requires assistance with design, development, installation, operation, modification and modernization of Automated Identification Technology (AIT) for the Department of Defense, Federal Agencies, foreign government via their Foreign Military Sales (FMS) sponsor, as required. IHD/NSWC has been tasked to support AIT which encompasses a variety of read and write data storage technologies that can be used to capture asset identification information. Those technologies include Radio Frequency Identification (RFID) and Micro-electromechanical Systems (MEMs) and derivatives. One particular system that will be supported is the Advanced Technology Ordnance Surveillance (ATOS) which is a derivative of AIT.

1.2   Background (Information Purposes Only)

The Department of Defense is seeking a means to more effectively and efficiently allow ordnance managers the ability to accurately locate and continuously determine the status of individual munitions on a near real-time basis while simultaneously updating predictions of their future condition and performance with a high level of confidence. The use of Information Technology (IT) is a key component in DoD's efforts to provide timely visibility of all logistics assets, whether in-process (being procured or repaired), in-storage (being stored as inventory), or in-transit (being shipped to another location). Automated Identification Technology (AIT) encompasses a variety of read and write data storage technologies that can be used to capture asset identification information. AIT may be comprised of bar codes, magnetic stripes, integrated circuit cards, optical memory cards, and radio frequency (RF) identification tags.

Advanced Technology Ordnance Surveillance (ATOS), which is a derivative of AIT, will consist of Radio Frequency Identification (RFID) "tags" including multiple sensors; to include fixed, portable, and handheld readers; a pre-processor database; and appropriate software interfaces. The RFID tag will be credit-card-sized, affixed to designated ammunition containers or pallets. The tag is intended to be low-cost, disposable, and maintenance-free with a service life of at least five years. It will monitor environmental conditions by transmitting sensor data at user-defined intervals. The tag stores data when not in communication with a reader. The tag will include temperature, humidity, and shock sensors and will allow for one (1) additional environmental sensor such as vibration. The readers will communicate with the tags and the pre-processor database. The readers will send data to the pre-processor database via a Local Area Network (LAN). Appendix A to this statement of work provides a base line requirements document for ATOS, this is provided for information purposes only.

1.3   Scope

Required support shall be provided in accordance with individual written task orders (TOs), issued by IHD/NSWC within the scope of the Statement of Work (SOW) of this contract. The contract is an Indefinite Delivery, Indefinite Quantity, with a period of performance of 12 months, and provisions for four 12 - month option periods. The contractor shall advise and assist the Government, but shall not make final decisions or certifications on behalf of the Government nor perform any inherently Governmental functions. The contractor and its employees shall not represent the Government nor appear to represent the Government in performance of these contract services. The contractor shall provide all resources to meet the requirements of the Statement of Work.

The purpose of this requirement is to provide engineering, development, manufacturing, installation and site support, testing, training, contractor maintenance and program management support for Advanced Technology

ATTACHMENT (2)

Ordnance Surveillance (ATOS) using AIT with Radio Frequency Identification (RFID) and Micro-electromechanical Systems (MEMS) and derivatives. Typical tasking shall include AIT system design and development, systems engineering, integration engineering, technical analysis, implementation, test and evaluation, logistics engineering, analysis and documentation support, and program management support services. Appendix A provides an example of the system requirements for ATOS.

2.0   REFERENCE DOCUMENTS

Unless otherwise specified in the SOW, the following documents are to be used for general guidelines only:

Applicable Documentation *(Advisory Only)*

DI-MGMT-80227	Contractor's Progress, Status and Management Report
DI-ADMN-81249A	Conference Agenda
DI-ADMN-81250A	Conference Minutes
DI-ADMN-81373	Presentation Material
DI-MISC-80508A	Technical Reports, Study/Services
DI-SESS-81000B	Product, Drawings & Associated Lists
DI-MISC-80711A	Scientific and Technical Reports

3.0   REQUIREMENTS

The contractor shall provide technical, development, and manufacturing support services and products to include personnel, material, services, and facilities to perform, accomplish, and complete the tasks described herein. The following task statements are meant to be descriptive, not specific. The specific work shall be in accordance with and within the scope of the subsequent paragraphs and identified in the task orders placed on this contract. The contractor shall not be responsible for determining patent or intellectual property ownership rights. It is the intention of the government to own all data rights, however, this can be further evaluated and determination made during the performance of the task orders under this contract. The contractor shall also adhere to Organizational Conflict of Interest clauses.

3.1   Automated Identification Technology (AIT) System Design, and Development

*As defined in individual task orders, the contractor shall take the Government's requirement and assist in the analysis of the design to develop, document, test and implement an Automated Inventory Management Systems using Automated Identification Technologies (AIT) such as contact memory, bar code and Radio Frequency Identification (RFID) technologies, tags, interrogators, readers and antenna systems in order to develop a Government design for possible future competitive procurement. This work shall include and encompass inventory management systems, asset tracking systems, order/utilization systems and components, remote sensing and highly distributed world-wide logistic management systems. The work may include asset tracking systems; automated data collection systems; automated environmental data collection /data reduction systems; automated identification systems; and automated inventory management and logistical systems. The contractor shall perform research and analysis of emerging technologies in logistics and communications, including the security of data communication.

*3.1.1   The contractor shall, as directed by each individual task order, provide support for Advanced Technology Ordnance Surveillance (ATOS) using AIT with Radio Frequency Identification (RFID) and Micro-electromechanical Systems (MEMS) and derivatives. The purpose of ATOS is to enhance the ability of existing systems to satisfies a need for an automated near real-time ammunition inventory visibility and management system. Joint Vision 2010/2020 and Joint Uniform and Service-specific Lessons Learned are replete with the need to more efficiently and effectively identify ammunition stocks and discern their material condition and specific configurations. A second major need that will be satisfied by ATOS is the ability to monitor and collect environmental data regarding storage and transportation conditions. The chemical stability, reliability, and

effectiveness of energetic components in ammunition are heavily influenced by their thermal experience. The collected data can be used to more effectively define and validate shelf/service life and identify assets that may have exceeded an established threshold. It is the intention of all programs tasks under this resulting contract to interface with all existing DoD systems to the fully extent possible. The contractor shall provide design, development, documentation, test and implementation support services for automated identification, asset management, and automated tracking systems which may or may not include sensors as defined in the individual task orders.

3.1.2   Automated identification and asset management system applications will include: munitions accounting; weapon systems components accounting; smart store rooms; identification and asset management of components, assemblies or weapon systems; location and tracking of components, support equipment, tool/inventory control; training equipment; inventory/location and management of spare parts; vehicle and personnel identification; remote environmental data collection; access control and security; logistics and supply chain management; and ATOS.

3.1.3   Assist the Government in the evaluation of the awarded contractor's developed prototypes to prove for government acceptance that their system meets the performance specifications and requirements of the SOW and task order. The goals of these programs are to enhance global combat services support information management, read/write designs for electronic tags, anti-collision schema, communication requirements, data encryption, data security, and system accuracy. As part of this effort the contractor may be required to develop technologies which improve inventory control, accuracy, and reporting with automated decision support processes to enhance battlefield distribution objectives.

3.1.4   Provide engineering and technical support for the contractor's developed system in the areas of system integration, test and evaluation, training, life cycle maintenance and logistic support of various AIT requirements, programs and projects. Specific current AIT technology examples include: linear and two dimensional (2D) bar codes; magnetic strips; miniature integrated circuit cards; Optical Memory Cards (OMC); contact memory buttons (CMBs); Radio Frequency Data Collection (RFDC); active and passive Radio Frequency Identification (RFID); contactless smart card technologies; smart labels; smart "chipless" labels; Global Positioning System (GPS); and, voice over internet protocol (VOIP).

3.1.5   Provide design, development, documentation and installation of remote autonomous microelectronics sensors and associated equipment using Micro-electromechanical Systems (MEMS), spread spectrum, frequency agile, active and passive RFID tags; and the integration to sophisticated large-scale data base management systems for sensing, tracking and reporting logistical elements for military materials, munitions, spare parts or any other high value asset.

3.1.6   Design, develop, implement and provide technical support to systems which provide automatic collection, storage retrieval, processing, transmission, and data reduction utilizing desktop computers, scanners, wireless and hand-held smart systems, microcircuit devices, smart cards, voice recognition systems, RF based identification technologies, satellite based transportation tracking, and remote sensing and reporting.

3.1.7   The application of standards and agreements to AIT systems including: DoD standards; American National Standards Institute (ANSI); FCC regulations; ISO standards; Military inter-service agreements; and, DoD inter-Government (multi-nation) agreements for AIT systems.

3.1.8   Provide support for the identification, evaluation and integration of Commercial-off-the-shelf (COTS) AIT components, readers, scanners, tags, software, and other components into fully-developed AIT applications for the Government.

3.2   Systems Engineering Supporting the Awarded Contractor's Systems

Systems engineering support for the awarded contractor's (refers to the successful offeror(s) on this solicitation) developed systems may be requested under this contract for the support of Advanced Technology Ordnance

Surveillance (ATOS) using AIT with Radio Frequency Identification (RFID) and Micro-electromechanical Systems (MEMS) and derivatives. This effort shall consist of systems engineering and technical support services such as requirements and functional analyses, systems design and systems evaluation for the purpose of transforming system needs into a description of preferred system configurations and their related performance parameters. These efforts comprise a top-down, iterative, systems engineering process that may be required during any phase of a system life cycle. All analysis reporting shall be prepared and submitted in accordance with the CDRL provisions of each task order. Engineering and development efforts will be mainly directed toward system prototyping in the support of new systems, applied research, advanced concept technology demonstrations (ACTDs), and the modification and modernization of existing military systems. Typical engineering subtasks to support the development and modification of a commercial or military hardware and/or software system may include:

3.2.1   The contractor shall prepare detailed electrical and mechanical designs required to implement functional requirements through the configuration of electrical, electronic, and mechanical components for awarded contractor's developed systems as required by each task order. This effort also includes creating, developing, producing and editing detailed design drawings and documentation for subsequent fabrication. The design engineering may include breadboard and system prototype fabrication for proof of concept and research evaluation. Development includes the integration of contractor developed and/or contractor acquired components with Government-provided components into functional systems in accordance with the documented performance baseline.

3.2.2   The contractor shall design, develop, modify, enhance, or expand his existing system's capabilities by the addition, deletion, or modification of digital hardware, inter-computer interfacing, peripheral equipment, real time analog or digital processing equipment, or special purpose electronics, hydraulic, pneumatic, or mechanical equipment. The contractor shall provide electronic and mechanical fabrication services where it may be necessary to work from engineering sketches as well as engineering drawings.

3.2.3   The contractor shall prepare engineering data packages to include new or revised engineering drawings, wire lists, schematic diagrams, wiring diagrams, interconnect diagrams, mechanical and installation diagrams, system Operation and Maintenance Manuals, and other documentation changes/updates as directed by the CDRL in each individual task order for the awarded contractor's system. Documentation will be developed in accordance with the format and content standards as directed. Each task order shall include a CDRL outlining specific documentation requirements.

3.2.4   The contractor may be required to fabricate prototypes for test and evaluation. This may require the construction, assembly, fabrication, test and delivery of components or complete systems developed by the contractor.

3.2.5   The contractor may be required to develop software as part of their system design and integration. All contractor developed software coding must pass Software Quality Assurance requirements, undergo formal acceptance testing in accordance with the Government approved Software Development Plan, and comply with software development requirements as identified in the Computer Resources Life-Cycle Management Plan (CRLCMP) or other Government approved software development procedures. The contractor shall develop and maintain Software Quality Program Plans and procedures to be performed during system software baseline development and modification efforts. The Software Baseline Release Package (Software Product Specification) and the Software Quality Program Plan shall be prepared in accordance with the CDRL provisions of each task order.

3.3   Integration Engineering Supporting the Awarded Contractor's Systems

Integration engineering tasks may be required for the awarded contractor's design systems under this contract to support Advanced Technology Ordnance Surveillance (ATOS) using AIT with Radio Frequency Identification (RFID) and Micro-electromechanical Systems (MEMS) and derivatives. This effort consists of the electronic and

electro-mechanical integration of hardware, software, mechanical components and assemblies, COTS materials and Government furnished equipment and materials.

Integration engineering tasks include feasibility analyses, interoperability analyses, and interface designs/ documents. Integration engineering may be required for contractor developed systems and system modernization via the removal of obsolete components and subassemblies, and replacement with modern, supportable counterparts.

Integration may be required among and between electronic hardware components, mechanical components and mechanical packaging, and embedded software components.

3.4 Technical Analysis Supporting the Awarded Contractor's Systems

Independent technical analysis support may be requested under this contract to support Advanced Technology Ordnance Surveillance (ATOS) using AIT with Radio Frequency Identification (RFID) and Micro-electromechanical Systems (MEMS) and derivatives. Detailed descriptions of such technical analysis shall be provided in individual task orders. The following represents typical technical analysis activities:

a. Engineering/Technical Documentation Review - Collection, organization, and annotation of references in selected systems engineering subject areas.
b. Data Analyses - Reduction, evaluation and analysis of design, installation and operational test data.
c. Reports - Preparation of point papers, scientific and technical reports.

3.4.1 Provide analysis through experimentation, surveys, field investigations and other appropriate methods in the following and related areas:

- Micro-electromechanical Systems (MEMS)
- Micro-electronic sensors and Radio Frequency Identification (RFID) electronics.
- Remote Automated Sensors
- Automated Identification Technologies (AIT)
- Wireless integrated microcircuits
- AIT anti-collision, read/write, and *HERO issues
- Team Training
- Computer/Electronic/Mechanical Systems
- Demonstration of Technology Effectiveness
- ASIC

*HERO tests: RF emitters must meet Hazards of Electromagnetic Radiation to Ordnance (HERO) safety standards. The current test consists of a pass-fail measurement of received voltage at a distance of four inches. According to test personnel, the voltage threshold corresponds to a 300 µW FSK emission at 433.92 MHz at that distance. Since the receiving antenna is not calibrated at this distance, we cannot calculate a "safe" power level at other frequencies, nor are we assured that a "pass" at four inches will allow us to place tags closer than four inches. It is possible that this test will be modified to allow a higher level. MIL-STD-461 requires that an RF emitter produce no more that 15% of the maximum no-fire stimulus (MNFS) to an electroexplosive device (EED). In practice, the most sensitive EED is used, whose MNFS is an induced current of 30 mA. Therefore, according to MIL-STD-461, an RF emitter cannot induce more than 4.5 mA

3.5 Implementation Supporting the Awarded Contractor's Systems

The contractor shall, as directed by task order, provide the following implementation support for Advanced Technology Ordnance Surveillance (ATOS) using AIT with Radio Frequency Identification (RFID) and Micro-electromechanical Systems (MEMS) and derivatives:

3.5.1   Installation. The contractor shall perform site surveys, perform installations and conduct tests for AIT and sensor systems, various support equipment, commercial systems, weapon systems and/or training equipment.

3.5.2   Maintenance.   The contractor shall maintain commercial or original equipment manfactuger (OEM) equipment to Government and/or OEM specifications.   Both preventive and corrective maintenance may be required. Maintenance shall be provided for AIT systems, support equipment, commercial equipment, training equipment, instrumentation and logistic asset management systems, electronic equipment and weapon systems. Maintenance may be required at Government and/or contractor sites. Operational sites may include CONUS and OCONUS locations. Contractor, depot, and Government site locations shall be stipulated in individual task orders. The contractor may be required to assess spares inventories, develop inventories, maintain such inventories, develop/maintain maintenance logs and maintenance documentation, develop maintenance plans/programs, and utilize / procure special tools and special test equipment.

3.6   Test and Evaluation Supporting the Awarded Contractor's Systems

The contractor shall, as directed by the task order, provide the following test and evaluation support for Advanced Technology Ordnance Surveillance (ATOS) using AIT with Radio Frequency Identification (RFID) and Micro-electromechanical Systems (MEMS) and derivatives:

3.6.1   Assist in developing detailed Test Plans describing the test approach methodology, test procedures, and anticipated results that will be used to measure operational performance of the awarded contractor's developed systems.

3.6.2   The contractor shall conduct system performance testing and record results of contractor developed systems. The contractor shall perform test and evaluation on commercial or military hardware and/or software systems in accordance with approved test plans and procedures. Test results of awarded contractor's developed systems shall be prepared in accordance with the CDRL for each task order.

3.6.3   Provide technical support to the Project Engineer during acceptance testing. The contractor shall provide technical assistance to the test and acceptance team in identifying, isolating and defining system performance deficiencies, and in documenting and assisting in the correction of Deficiency/Discrepancy Reports.

3.7   Logistics Engineering, Analysis and Documentation Supporting the Awarded Contractor's Systems

The contractor shall, as directed by an individual task order, conduct on-going logistics, reliability, maintainability, supportability, and quality assurance planning and analysis support reviews. The contractor shall furnish the necessary personnel, facilities, materials, and supplies to perform the various logistics analysis tasks, and furnish the necessary items as described within each task order. Reports shall be prepared in accordance with the CDRL provisions for each task order. Typical tasking to support Advanced Technology Ordnance Surveillance (ATOS) using AIT with Radio Frequency Identification (RFID) and Micro-electromechanical Systems (MEMS) and derivatives will include:

   a.) Assist in the development of Logistic Support Analyses for equipment and systems.
   b.) Assist in the development of Reliability and Maintainability estimates for equipment and systems.
   c.) Assist/develop Maintenance Requirements cards, maintenance plans, and maintenance procedures.

3.8   Documentation Support Services Supporting Awarded Contractor's Systems

The contractor shall, as directed by task order, provide the following documentation support services to support Advanced Technology Ordnance Surveillance (ATOS) using AIT with Radio Frequency Identification (RFID) and Micro-electromechanical Systems (MEMS) and derivatives:

3.8.1   The contractor shall provide documentation support, as required by task order, for system modifications, commercial or military system relocation, project management tasks, research tasks, and any other task associated with the acquisition and life-cycle support of operational systems such as participation in documentation review conferences. The contractor shall be required to develop or revise all associated documentation to reflect the new or modified system configuration. Documentation shall typically include, Technical Data Packages (TDPs), Operation and Maintenance Manuals, Functional Characteristics Documentation, Equipment Facilities Requirements Documentation, Facilities Reports, Requirements Documentation, Planned Maintenance System Data, and support planning documentation.

3.8.2   The contractor shall assist in developing and maintaining documentation changes for each approved system modification effort, including diagrams, flowcharts, engineering drawings and other graphically presented data. Documentation updates shall be developed in accordance with the initial document format and content standards or as otherwise directed. The contractor shall coordinate assignment of change page numbers with cognizant logistics/technical documentation managers.   Each task order shall include a CDRL outlining specific documentation change requirements.

3.8.3   The contractor shall conduct searches, reviews, collection, compilation, reduction and analysis (including statistical analysis) of data and information on operational systems and components. Data acquisition will be required to support either the Government's efforts for the development of specific commercial or military systems or subsystems.

3.9   Program Management Supporting the Awarded Contractor's Systems

The contractor shall, as directed by task order, provide the following program management support for Advanced Technology Ordnance Surveillance (ATOS) using AIT with Radio Frequency Identification (RFID) and Micro-electromechanical Systems (MEMS) and derivatives:

3.9.1   Program Management

The contractor shall provide management and technical assistance to support task orders under this contract.

3.9.2   Meetings and Reviews

The contractor shall assist in scheduling and conducting design reviews for the awarded contractor's proposed design, development or modifications in two phases: Preliminary Design Reviews (PDRs) and Final or Critical Design Reviews (CDRs). The design reviews shall, as a minimum, review the design and development approach, resource requirements and utilization status, risk areas and potential problems and development progress. Presentation materials, Conference Agendas, and Conference Minutes shall be prepared and submitted in accordance with the CDRL provisions of each task order.

3.9.3   Plan of Action and Milestones

If specifically required in the task order, the contractor shall present a Plan of Action and Milestones (POA&M) for task completion. The POA&M shall define the contractor's methods and schedule for implementing the task(s) as specified in the task order.

4.0   DATA DELIVERABLES

As required by the individual task orders the contractor shall provide the following deliverables in accordance with the contract data requirements list (CDRL) and the data item description (DID) (Advisory):

4.1   The contractor shall submit monthly status reports, *Contractor's Progress, Status and Management Report*, CDRL Item A001, (DI-MGMT-80227), (Advisory), indicating the work accomplished, status and cost to include:

a.   Contractor's name and address.
b.   Contract number.
c.   Date of report.
d.   Period covered by report.
e.   Man-hours expended for the reporting period, and cumulatively during the contract.
f.   Cost curves portraying actual/projected conditions through contract.
g.   Cost incurred for the reporting period and total contractual expenditures as of report date.
h.   Description of progress made during period reported, including problem areas encountered, recommendations, if any for subsequent solution beyond the scope of this contract.
i.   Trips and significant results.
j   Plans for activities during the following period.

4.2   *Conference Agenda*, on an as required basis, IAW DI-ADMN-81249A, (Advisory), CDRL Item A002.

4.3   *Conference Minutes*, on an as required basis, IAW DI-ADMN-81250A, (Advisory), CDRL Item A003.

4.4   *Presentation Material*, on an as required basis, IAW DI-ADMN-81373, (Advisory), CDRL Item A004.

4.5   *Technical Report-Study/Services*, on an as required basis, IAW DI-MISC-80508A, (Advisory), CDRL Item A005.

4.6   *Product Drawings and Associated Lists*, on an as required basis, IAW DI-SESS-81000B, (Advisory), CDRL Item A006.

4.7   *Scientific and Technical Reports*, on an as required basis, IAW DI-MISC-80711A, (Advisory), CDRL Item A007.

5.0   TRAVEL

The contractor may be required to travel in performance of this contract. Specific travel requirements shall be delineated in individual task orders and shall be in accordance with Joint Federal Travel Regulations.

6.0   GOVERNMENT FURNISHED EQUIPMENT/INFORMATION (GFE/GFI)

The Government shall furnish all equipment and information necessary to enable the contractor to perform engineering, development, manufacturing, testing and training efforts, as may be required in the execution of specific task requirements. The Government will furnish the contractor applicable information and other related documentation required to complete assigned tasking. Individual task orders shall specify the Government Furnished Equipment and Information to be issued.

7.0   SECURITY

All key personnel associated with this contract may be required to have a DoD "secret" clearance. The contractor shall have access to information and compartments with a "secret" classification. All deliverables associated with this SOW are "unclassified" unless otherwise specified on the individual task orders. Individual task orders shall specify the security requirement.

8.0   DISCLAIMER STATEMENT

Any reports resulting from this contract shall contain the following disclaimer statement on the cover of such reports:

APPENDIX A

ATOS Technical Requirements
6 August 2001

1.0 Tag and tag holder:

    1.1 The tag shall be provided in two versions, operating at different frequencies as follows; both frequency bands may be placed on a single tag, but this is not required:

        1.1.1 Low band version:

            1.1.1.1 Operating frequency shall be 433.92 MHz.

            1.1.1.2 Data transfer speed for both transmitter and receiver shall be at least 500 bytes per second.

        1.1.2 High band version:

            1.1.2.1 Operating band shall be 2400.0-2483.5 MHz. Spread-spectrum modulation may be used, but is not required.

            1.1.2.2 Data transfer speed for both transmitter and receiver shall be at least 300 bytes per second.

    1.2 The maximum dimensions for the tag and holder combination shall be 4.0 inches/102 mm x 2.5 inches/64 mm x 1.25 inches/32 mm with the tag installed in the holder.

    1.3 Holder shall be easily operable, and tag shall be easily inserted or removed when attached within a recess of dimensions 6 inches/150 mm x 3 inches/76 mm x 1.5 inches/38 mm deep.

    1.4 Tag shall be inserted into the holder and shall be held rigidly and securely throughout the environmental conditions stated below without affecting tag and sensor operation.

    1.5 Construction methods and materials for the tag and holder shall:

        1.5.1 not interfere with RF transmissions.

        1.5.2 not be affected by the environmental operating conditions specified below.

        1.5.3 comply with Government-supplied requirements for electrostatic discharge and HERO.

    1.6 An adhesive method for permanently attaching the tag holder to a wide variety of surfaces including wood, metal, fiberglass, and others shall be provided. The attachment shall not be affected by environmental conditions stated. Technical advice on adhesives may be provided by Indian Head Detachment Earle.

    1.7 Tag shall be self-contained, with no externally accessible connections.

    1.8 Tag battery shall be hard-wired but accessible for replacement.

    1.9 . Environmental requirements:

        1.9.1 Operating temperature: 0° F to +155° F.

        1.9.2 Drop test (tag only): operable after 4 feet/1.2 meter drop to concrete, any orientation.

        1.9.3 Operable at humidity: 0 – 95% RH, noncondensing.

        1.9.4 Environmental sealing: exposure to all outdoor environments including, but not limited to rain, snow, solar, and dust shall not affect operation.

        1.9.5 Electrostatic discharge: operable after 15KV test.

        1.9.6 Intrinsically safe per ISA specification RP-12.6 with UL/FM certification for Class I Division I, Groups A, B, C, and D.

    1.10 Battery status shall be indicated by a single bit, which shall be set, if the battery voltage falls to within 0.2 V above the minimum operating voltage for the tag electronics.

    1.11 Sensors: The tag shall have three sensors and provision for a fourth sensor. All sensor ports shall be of 8-bit resolution.

        1.11.1 A temperature sensor with a range equal to the operating temperature range of the tag. End-to-end accuracy (as recorded via the reader) shall be ± 5 ° F over the entire range and over total life of the tag.

        1.11.2 A humidity sensor with a range of 5-95% RH. End-to-end accuracy (as recorded via the reader) shall be ± 5 RH % over the entire range and over the total life of the tag.

        1.11.3 G-sensor:

1.11.3.1 Twenty (20) tags shall each contain a g-sensor to be furnished by the Government, provided that it is furnished no later than 1 September 2002.

1.11.3.2 The g-sensor is intended to be composed of six latching switches in series.

1.11.3.3 The Government shall specify the required resistor network integrated circuit, which shall be in the tag to allow resolution of switch closure status using a single 8-bit port.

1.11.3.4 The tag mechanical design shall allow physical space for the g-sensor as follows:

1.11.3.4.1 The g-sensor shall have dimensions of no greater than 1.2 inches/30, by 0.7 inches/18 mm, by 0.6 inches/15 mm.

1.11.3.4.2 The Government shall provide information for mounting the g-sensor.

1.12 Sensor historical memory – The tag shall contain sufficient nonvolatile memory, and shall provide functioning for the temperature and humidity sensors as follows:

1.12.1 Historical memory shall use three bytes per bin, and the data shall be bit-encoded. That is, each bin shall have a maximum count of 16,777,216.

1.12.2 If a sensor reading falls within a bin, the bit count shall be incremented for that bin by one.

1.12.3 If a sensor reading falls exactly at a threshold between bins, the bit count shall be incremented for the next higher temperature bin.

1.12.4 Temperature sensor: except as noted, divide the operating temperature range 5 F° "bins" starting at the lowest operating temperature. If the highest temperature bin is less than 3 F°, it shall be part of the next lower bin. Otherwise, it shall be a separate bin.

1.12.5 Humidity sensor: divide the RH range into equal bins, each representing a span of 5 RH%, starting at the lowest RH%.

1.13 Peak indicator memory: The tag shall contain sufficient nonvolatile memory, and shall provide functioning for the temperature and humidity sensors as follows:

1.13.1 Temperature sensor: A bit corresponding to each of the bins shall be set when a reading falls within that bin.

1.13.2 Humidity sensor: A bit corresponding to each of the bins shall be set when a reading falls within that bin.

1.14 Asset data memory: The tag shall have sufficient nonvolatile memory for the asset data elements defined in Appendix B.

1.15 Transmitter. Each tag shall have a transmitter with the following characteristics:

1.15.1 RF emitted power:

1.15.1.1 Maximum RF field shall be limited to levels shown in the National Telecommunications and Information Administration (NTIA) "Manual of Regulations and Procedures for Federal Radio Frequency Management", Annex K, for unlicensed non-spread spectrum emitters. This requirement does not preclude use of spread-spectrum modulation in the 2400.0 – 2483.5 MHz band.

1.15.1.2 Spurious emissions shall be limited to the appropriate NTIA Annex K levels for spread-spectrum or non-spread-spectrum emitters.

1.15.1.3 Frequency tolerance shall be in accordance with provisions shown in NTIA chapter 5.

1.15.1.4 The document is available on-line at www.ntia.doc.gov/osmhome/redbook/redbook.html.

1.15.2 Transmitter operation.

1.15.2.1 Periodic transmission:

1.15.2.1.1 The transmitter shall send tag ID, current sensor readings, and battery status bit every 60 ± 10 minutes autonomously.

1.15.2.1.2 Bit-encoded sensor data (that is, one byte per sensor reading) is required.

1.15.2.1.3 Timing and duration of every tag's periodic transmission shall take into consideration the overall network performance.

1.15.2.2 Sensor memory transmission duration shall take into consideration the overall network performance.

1.15.2.3 Asset data transmission duration shall take into consideration the overall network performance.

1.16 Receiver: Each tag shall have a receiver with the following characteristics:

1.16.1 Operating frequencies and data transfer rate shall be the same as for the transmitter.

1.16.2 Receiver operation:

1.16.2.1 The receiver is turned on every 2.0 ± 0.1 seconds to listen for any reader commands.

1.16.2.2 If a signal intended for the tag is being received, the receiver shall remain on until completion of reception.

1.17 The tag design shall allow the following commands via the tag receiver. Any external commands received from a handheld reader shall take precedence over those received from a fixed or portable reader; all external commands shall contain an 8-character (16-byte) unique code to identify the particular reader and its type. Tag shall start execution of any received command (excluding roll-call response) within 0.5 seconds.

1.17.1 Tag selected for communication. Tag receiver remains on for 1.0-second minimum or until the end of a signal, whichever is greater.

1.17.2 Cease periodic transmissions. All other tag operations shall be unaffected.

1.17.3 Resume periodic tag transmissions.

1.17.4 Transmit tag ID and entire asset data memory content.

1.17.5 Transmit tag ID, and entire (historical and peak indicator) sensor data memory content.

1.17.6 Transmit tag ID and DODIC asset data element (roll call response). Roll call is defined as tag response to an external command to all tags within range.

1.17.7 Write entire asset data memory content.

1.17.8 Write entire (historical and peak indicator) sensor data memory content.

1.17.9 Clear sensor historical memory (set all bits to zero).

1.17.10 Clear temperature peak indicator memory.

1.17.11 Clear humidity peak indicator memory.

1.17.12 Initiate analog-to-digital conversion for all sensor ports and transmit tag ID, battery status and all current sensor readings.

2.0 Fixed reader: the fixed reader is intended to be installed in permanent structures such as ammunition storage magazines and shops. Anticipated magazine interior size is 80 feet/24 meters long by 25 feet/7.6 meters wide by 12 feet/3.7 meters high. Ammunition storage magazines are generally constructed of reinforced concrete.

2.1 The fixed reader shall have two-way communication with tags, and two-way communication with the preprocessor database using a wireless LAN system described below.

2.2 The fixed reader shall be installed outside the magazine, in a manner to be specified.

2.3 Power source: The fixed reader shall operate on any of the following: 120 VAC, 60 Hz; 240 VAC, 50 HZ; 12 VDC; and 24 VDC. Changing power source shall be foolproof.

2.4 Environmental requirements:

2.4.1 Operating temperature: 0° F to +155° F

2.4.2 Drop test: Operable after 4-feet/1.2 meter drop to concrete (any orientation).

2.4.3 Operable with humidity: 0 – 95% RH noncondensing

2.4.4 Environmental sealing: Exposure to all outdoor environments including, but not limited to rain, snow, solar, and dust shall not affect operation.

2.4.5 ESD: operable after 15KV test

2.4.6 Intrinsically safe per ISA specification RP-12.6 with UL/FM certification for Class I Division I, Groups A, B, C, and D.

2.5 The Government intends to furnish information to ensure that the fixed reader and its associated cables and wiring meet safety requirements.

2.6 Reader antennas:

2.6.1   The fixed reader shall accept inputs from multiple antennas at either operating frequency band. The design shall prevent duplicate tag signals from being transmitted to the preprocessor database.

2.6.2   Antennas shall be omnidirectional in at least one plane.

2.6.3   The antennas shall be placed within the magazine.

2.6.4   Antenna mounting shall allow adjustment of antenna position and orientation for best coverage.

2.6.5   In larger structures, multiple antennas shall be connected to the fixed reader if needed to provide a larger coverage area.

2.7 Receiver:

2.7.1   The fixed reader receiver shall be capable of receiving tag signals at both tag operating frequency bands.

2.7.2   The frequency band to be used shall be selectable by means of a switch accessible internally within the fixed reader.

2.7.3   All types of tag transmissions shall be supported.

2.8 The maximum number of tags per magazine that will communicate with each fixed reader shall be 1000.

2.9 Transmitter:

2.9.1   The fixed reader shall be capable of transmitting to any tag whose receiver is on.

2.9.2   The frequency band to be used shall be selectable by means of a switch accessible internally within the fixed reader.

2.9.3   All tag external command and data transfer functions shall be supported.

2.9.4   Emission requirements shall be the same as for the tag transmitter, Paragraph 1.15.

2.10 The fixed reader shall provide sufficient buffering capability to allow receipt of commands or data intended for transmission to tags from the preprocessor at any time.

2.11 The fixed reader shall contain an internal keypad and display, or an external handheld keypad and display with an internal access port capable of verifying internal operation, communication with tags and wireless LAN operation.

2.12 The fixed reader shall provide an interface to allow connection with an appropriate wireless LAN device. The interface shall be separately accessible for test purposes.

2.13 The fixed reader shall transmit via the wireless LAN all tag data immediately upon receipt from each tag. All environmental requirements of the fixed reader apply to the physical connection between the fixed reader and the wireless LAN device.

2.14 The fixed reader shall include its unique ID in all transmissions.

2.15 The fixed reader shall have automatic operation after power-up, and automatic re-initialization after power loss and restoration.

2.16 A method to change the software in the fixed reader shall be included using both a local connection to an external PC or via wireless LAN connection to the preprocessor database.

2.16.1   A SDK shall be provided to modify all fixed reader functions.

3.   Wireless LAN system:

3.1. A commercial 2450 MHz-band wireless LAN system, designed for outdoor use, shall be used.

3.2. The wireless LAN system shall be approved for use in the U.S. and also type-accepted in Europe, to include Germany, Italy and Spain at a minimum.

3.3. Rated transmission range shall be at least 5 miles/ 8 km line-of-sight in all weather conditions. Appropriate antenna assemblies for the fixed and portable readers and the preprocessor shall be provided to support this range.

3.4. The Government shall furnish information to ensure that the wireless LAN system and its associated cables and wiring meet safety requirements.

3.5. Peak effective radiated power shall be limited in accordance with NTIA Annex K levels for unlicensed spread-spectrum emitters.

3.6. The wireless LAN system shall automatically establish communication between the fixed reader and the preprocessor database upon power-up and upon restoration of power after power loss.

3.7. Fixed and portable reader wireless LAN requirements:

3.7.1.   Each fixed and portable reader shall be provided with a wireless LAN device.

3.7.2. All environmental requirements for the fixed reader apply to the wireless LAN system, including the antenna, cabling, and connections.

3.7.3. The wireless LAN shall be powered through the fixed or portable readers.

3.8. Preprocessor wireless LAN requirements:

3.8.1. The wireless LAN device shall be capable of being installed up to 500 feet from the preprocessor.

3.8.2. The wireless LAN device shall include all hardware to allow communication between the preprocessor and four readers.

3.8.3. The wireless LAN device shall be capable, through expansion, of the overall system performance requirements shown in section 7.2.

4. Handheld Reader:

4.1. The handheld reader shall be based upon a commercially available barcode scanner.

4.2. The handheld reader shall support, as a minimum, all current Department of Defense bar codes.

4.3. The handheld reader shall not include any RF emitters beyond those specified in this section.

4.4. The handheld reader shall have a ¼-VGA LCD screen (minimum) with adjustable backlighting.

4.5. The handheld reader shall have at least one PCMCIA slot.

4.6. The handheld reader battery shall be rechargeable.

4.7. The handheld reader shall allow docking for two-way data transfer and battery recharge. The docking station shall have hardwired LAN connection for data transfer to the preprocessor.

4.8. The handheld reader shall support all tag asset data elements shown in Appendix B, as well as those shown in Appendix C.

4.9. The handheld reader shall support tag sensor data.

4.10. Memory:

4.10.1. The handheld reader shall have a removable storage medium of sufficient size to store all the sensor information and the asset data of Appendices B and C for 5000 tags.

4.10.2. The removable storage medium shall be easily inserted and removed, and survive all of the environmental requirements of the handheld reader.

4.11. The handheld reader shall support the following:

4.11.1. Select tag for communication.

4.11.2. Cease periodic transmissions

4.11.3. Resume periodic tag transmissions.

4.11.4. Transmit tag ID and entire asset data memory content and write to tag memory.

4.11.5. Command tag to transmit tag ID and entire asset data memory content.

4.11.6. Transmit tag ID and entire (historical and peak indicator) sensor data memory content and write to tag memory. .

4.11.7. Command tag to transmit tag ID, and entire (historical and peak indicator) sensor data memory content.

4.11.8. Roll-call.

4.11.9. Command tag to clear sensor historical memory (set all bits to zero).

4.11.10. Command tag to clear temperature peak indicator memory.

4.11.11. Command tag to clear humidity peak indicator memory.

4.11.12. Command tag to Initiate analog-to-digital conversion for all sensor ports and transmit tag ID, battery status and all current sensor readings.

4.11.13. Barcode read.

4.11.14. Barcode print.

4.12. The handheld reader software shall display confirmation of issued commands and tag responses.

4.13. The Government will develop the Graphical User Interface for the handheld reader.

4.14. A software development kit for the handheld reader shall be provided that will allow development and modification of handheld reader software by the Government. This kit shall include all Application Programming Interfaces and drivers required to access all hardware as well as enable programming of Graphical User Interfaces.

4.15. The handheld reader shall have the capability to print a barcode label using a portable printer accessory.

4.16. Transmitter: the handheld reader shall have a transmitter whose operating frequency, and emission requirements shall be the same as for the tag transmitter.

4.16.1. The frequency band to be used shall be selectable by means of a switch accessible internally within the reader.

4.17. Receiver: the handheld reader shall have a receiver whose operating frequencies shall be the same as for the tag receiver.

4.17.1. The frequency band to be used shall be selectable by means of a switch accessible internally within the reader.

4.18. The antenna(s) used on the handheld reader shall be omnidirectional in the horizontal plane with the handheld reader held in its normal position.

4.19. The handheld reader shall include its unique ID in all transmissions.

4.20. Environmental requirements:

4.20.1. Operating temperature: 0° F to +120° F

4.20.2. Drop test: Operable after 4 feet/1.2 meter drop to concrete (any orientation).

4.20.3. Operable with humidity: 0 – 95% RH noncondensing

4.20.4. Environmental sealing: Exposure to all outdoor environments including, but not limited to rain, snow, solar, and dust shall not affect operation.

4.20.5. ESD: Operable after 15KV test.

4.20.6. Intrinsically safe per UL certification.

5.0 Portable reader: the portable reader has the same functions as the fixed reader, except is to be used in remote areas. It is suggested that the portable reader be a modified version of the fixed reader. All fixed reader features apply, except as shown below:

5.1 The portable reader shall use the same type of removable memory as the handheld reader, and shall have enough capacity to store 30 days of data from a minimum of 1000 tags in a periodic transmission mode.

5.2 Environmental requirements shall be the same as for the fixed reader.

5.3 The portable reader shall transmit a unique portable reader ID code in each transmission.

5.4 The portable reader shall be equipped with an antenna assembly such that, when operating:

5.4.1 The antenna is omnidirectional in the horizontal plane.

5.4.2 The lowest point of any radiating element shall be at least 10 feet/3 meters above the ground.

6.0 Preprocessor: The preprocessor shall be the central controller for all ATOS functions at each location.

6.1 The preprocessor shall accept inputs from four readers via the wireless LAN. The preprocessor shall provide the user with a means of monitoring wireless LAN performance in real time.

6.2 The preprocessor shall include a minimum of two hardwired LAN ports. One port shall be used for the handheld reader docking station. The other shall be a spare.

6.3 The preprocessor shall support the removable storage medium used by the handheld reader.

6.4 The preprocessor shall monitor and manage all communications from the fixed and portable readers.

6.5 The preprocessor shall be capable of remotely rebooting the fixed readers, and portable readers.

6.6 The preprocessor shall immediately store the incoming data received via the wireless LAN in a database. Data shall be date and time-stamped.

6.6.1 The preprocessor database shall be based on commercially available database software and shall include the user license and source code for all customized software. Such software shall allow communication using industry-standard software protocols such as ODBC to facilitate data transfer between applications and hardware platforms.

6.6.2 The preprocessor database shall support the asset data elements shown in Appendices B, C, and D.

6.7 The preprocessor software shall provide a standard interface to allow use by other applications.

6.7.1 The interface shall support the following functions:

6.7.1.1 All commands of the handheld reader, including roll-call by specific fixed or portable readers, excluding barcode read and barcode print.

6.7.1.2 Identify readers.

6.7.1.3 Monitor tag and reader responses.

6.7.1.4 Allow retrieval of stored periodic environmental data for a selected tag.

6.7.2 The interface shall be designed to allow use by another application yet be loosely coupled such that it can be called either locally (on the same platform as the preprocessor) or remotely (via a LAN or Internet).

6.7.3 The interface shall be designed such that the calling application does not have to be in the same programming language used by the interface/preprocessor software.

6.8 The preprocessor shall provide a means to load, in a secure manner, new or modified software to any reader

6.9 The preprocessor shall transmit a unique preprocessor ID code in every transmission to any reader.

6.10 The preprocessor platform shall be rated for use in an industrial environment.

6.11 The preprocessor shall be easily expandable for Government-developed additional capabilities (through plug-in boards) without affecting the performance, timeliness, or accuracy of the tag communication or database operations to include, but not be limited to:

6.11.1 Stream all data through a secure or commercial connection to NAVSEA Indian Head for further analysis or manipulation in real time.

6.11.2 Provide a means and interface for another computer or network server to pull or push any of the asset, sensor, or historical data needed in real time.

6.12 To monitor temperature, humidity, and g-sensor peak indicator flags and sensor data in real time, the preprocessor shall be designed to operate in a multiprocessor environment.

6.13 A software development kit for the preprocessor shall be provided that will allow development and modification of software by the Government. This kit shall include all Application Programming Interfaces and drivers required to access all hardware as well as enable programming of Graphical User Interfaces

7.0 Overall system performance:

7.1 The overall performance of the ATOS system shall be such that the preprocessor shall correctly detect 90% of tags within a magazine within 75 minutes. There shall be no false detections (apparent detection of IDs not present). Note: the system shall not utilize previous enrollment of tag IDs. The test conditions shall be:

7.1.1 200 tags, all in the periodic transmission mode, in each of two magazines per one preprocessor. Low-band and high-band tags shall be tested separately.

7.2 Analysis: The system shall support, through expansion, and an analysis shall be provided to document, the following performance requirements:

7.2.1.1 600 tags (average) per reader, all in the periodic transmission mode.
7.2.1.2 300 readers (fixed or portable) per installation.
7.2.1.3 100 asset data downloads from tags during 75 minutes.
7.2.1.4 100 sensor memory downloads from tags during 75 minutes.

8.0 Communication range:

8.1 100% of tags placed at a height above ground of 3 feet/0.9 meters shall demonstrate two-way communication with the fixed and portable readers at 300 feet/91 meters (low band version) and 100 feet/30 meters (high band version) unobstructed horizontal range when the reader antenna is placed at a height of 10 feet/3 meters without regard to the orientation of the tag to the reader antenna. Antenna cable length from antenna to reader shall be 20 feet/6.1 meters. Bit error rate shall be 10^{-8} or less.

8.2 100% of tags placed at a height above ground of 3 feet/0.9 meters shall be received by the handheld reader at 50 feet/15 meters (low band version) and 15 feet/4.6 meters (high band version) unobstructed horizontal range when the handheld reader is placed at a height of 3 feet/0.9 meters without regard to the orientation of the tag to the handheld reader. Bit error rate shall be 10^{-8} or less.

9.0 Software: all software shall use a commercially-available, Department of Defense-approved operating system excluding Windows 2000.

IHD 195 - SECTION L PROPOSAL REQUIREMENTS (FEB 2000) (NAVSEA/IHD)

THE OFFEROR SHALL PROVIDE THE FOLLOWING INFORMATION:

GENERAL INFORMATION: Each Offeror must submit an offer/proposal and other written information in strict accordance with these instructions. When evaluating an Offeror the Government will consider how well the Offeror complied with both the letter and spirit of these instructions. The Government will consider any failure on the part of the Offeror to comply with both the letter and the spirit of these instructions to be an indication of the type of conduct it can expect during contract performance. Therefore, the Government encourages Offerors to contact the contracting officer by telephone, facsimile transmission, e-mail, or mail in order to request an explanation of any aspect of these instructions.

The Offeror shall submit the following information:

1. Two (2) completed and signed solicitation packages, with all representations and certifications executed, and with prices in Section B.
2. Four (4) copies of the technical proposal, Volume I.
3. Two (2) copies of the past performance information, Volume II.
4. Two (2) copies of the cost/price proposal, Volume III.
5. One (1) copy of the Small Business Subcontracting Plan, Volume IV.

OFFERORS SHALL ADDRESS THE FOLLOWING FACTORS: (Listed in order of importance) Information shall be submitted in three separate volumes or folders as detailed below.

Volume 1: Technical Proposal- Shall address Factors as detailed below. Not to exceed 50 single sided pages, not less than 10 pitch (Times New Roman or similar).

The following factors, listed in order of importance, shall be used to evaluate offers:

Experience
Micro-electromechanical Systems (MEMS) design capabilities
Radio Frequency Identification (RFID) reader design capabilities
Application Specific Integrated Circuit (ASIC) design capabilities
Test Capabilities
Past Performance   As Set Forth Herein
Cost/Price   Not Scored

1.0   Experience:

ATTACHMENT (4)

The Offeror shall provide a narrative summary of the Automatic Identification Technology (AIT) work that your facility has done in the past or is currently working on. Specifically address your relevant experience in performing AIT work similar in size and complexity to Advanced Technology Ordnance Surveillance (ATOS) as described in the Statement of Work with respect to the following items, which have equal weight:

1. AIT System Design, and Development as defined in SOW 3.1
2. AIT Systems Engineering as defined in SOW 3.2
3. AIT Integration Engineering as defined in SOW 3.3
4. AIT Implementation as defined in SOW 3.5

2.0 Micro-electromechanical Systems (MEMS) design capabilities as defined in SOW paragraphs 3.1.5 , 3.4.1, and has applications throughout the SOW:

The Offeror shall describe their MEMs design capability and how this will meet the requirements for an RFID system with sensor integration and a database to track IDs and sensor data.

3.0 Radio Frequency Identification (RFID) reader design capabilities as defined in SOW paragraphs 3.1.1, 3.1.4, 3.1.5, 3.4.1, and has applications throughout the SOW:

The Offeror shall provide a narrative summary of their RFID reader design capabilities to include fixed, portable, and handheld readers. The Offeror shall describe the function and complexity of their designed RFID readers to include fixed, portable, and handheld readers.

4.0 Application Specific Integrated Circuit (ASIC) design capabilities as defined in SOW paragraph 3.4.1 and has applications throughout the SOW:

The Offeror shall describe their ASIC design capabilities and how this will meet the requirements for Automatic Identification Technology (AIT). The Offeror shall describe the function and complexity of the hardware/devices as it relates to their ASIC design.

5.0 Test capabilities as defined in SOW paragraphs 3.5.1 and 3.6:

5.1   The Offeror shall describe their testing capabilities in testing AIT technology and devices. The Offeror shall provide a narrative summary of their relevant experience in testing AIT devices of similar size and complexity to the ATOS system. The narrative shall include a description of relevant devices tested, the type and scope of testing the Offeror performed on the devices, the equipment used in the testing, and the Offeror's responsibility for testing, collecting data, interpreting the data, assessing the impact of anomalies, and reporting the results. The Offeror shall describe the testing facilities to include the general description, size, location of the testing facility and its distance from other facilities (if not at the same contiguous site), age of the testing facility, equipment, and other relevant information.

VOLUME II Past Performance- (Shall contain only the Past Performance Information not to exceed 12 pages total.)

Past Performance is a measure of the degree to which an Offeror, as an organization, has during the past three (3) years: (1) satisfied its customers, and (2) complies with federal, state, local laws and regulations. The Offeror shall provide a list of references using the Past Performance Matrix, (Attachment 5), who will be able to provide information regarding the Offerors past performance during the past three (3) years regarding; (1) customer satisfaction; (2) timeliness; (3) reliability; (4) program management; (5) and product quality.

The Offeror will submit the Past Performance Interview Sheet, to each of the references listed on the Past Performance Matrix, a minimum of three (3) is required. The Offeror shall instruct the reference to complete past performance Questionnaire and return it directly to

Naval Surface Warfare Center
101 Strauss Ave, Bldg. 1558
Indian Head, MD 20640-5035
Attn: Michael Burch, Code 1141B

The Offerors selected references must be listed on the Past Performance Matrix. Failure of the references to submit Past Performance Questionnaire to the contract specialist by the Closing Date of the Solicitation may result in inability of the Government to rank the Offerors past performance.

The Offeror shall explain, if any, the role that sub-contractors have played in contributing to the success and/or failures of the Offeror and to what extent sub-contractor performance has contributed to the past performance evaluation.

NOTE: PAST PERFORMANCE INFORMATIONAL & QUESTIONNAIRE SHEETS ARE ATTACHMENTS TO THE SOLICITATION, AS LISTED IN SECTION J.

VOLUME III Cost/Price- (Shall contain only the cost/price information)

There is no limitation on number of pages, page format, or print size for the cost proposal.

The Offeror shall prepare the cost proposal in accordance with the following organization, content and format requirements to assist the Government in making a complete and thorough evaluation. An original and one copy of each prime and subcontractor, if applicable, cost proposal shall be submitted to the Procuring Contracting Officer for evaluation. Only one copy of Microsoft Excel 5.0, 3.5" disk(s) with the contractor's and subcontractor's cost proposal need be submitted. Only

Microsoft Excel is acceptable **(Office 97 preferably--any later version of Microsoft Excel is NOT ACCEPTABLE).**

The Offeror shall take precautions to the maximum practical extent to ensure that the disk submitted contains no computer viruses.

Furnish all cost proposal information in the order listed. This requirement also applies to any proposed subcontractor(s).

(a)   Assumptions made in preparing the cost proposal. Any qualifications to any requirement of the cost proposal preparation process. Any inconsistency, whether real or apparent, between promised performance and cost shall be explained.

(b)   ONE COPY OF YOUR COST PROPOSAL SHALL BE SENT TO YOUR COGNIZANT DCAA CONCURRENT WITH THE SUBMISSION TO THE PROCURING CONTRACTING OFFICER. YOUR PROPOSED SUBCONTRACTORS, IF ANY, SHALL BE INSTRUCTED TO DO THE SAME. Provide confirmation and date that copies of this cost proposal were submitted to DCAA, along with a telephone number and point of contact.

(c)   List of subcontractors that are submitting cost information independently.

(d)   Briefly describe information concerning the general financial condition of your firm and specific plans for financing the proposed contract, including the latest available financial statement.

(e)   If you are currently being audited, or have been audited by Defense Contract Audit Agency (DCAA) within the past twelve months, it is requested that the name, phone number and location of the assigned DCAA office be furnished with your proposal along with the audit number.

(f)   State the source and date of acceptance of adequacy of the Offeror's accounting system.

(g)   If the Offeror has an approved Purchasing System, provide the source and date of latest review. If the Offeror does not have an approved Purchasing System, state what processes are used for purchases of such items as materials, travel, and training.

(h)   State whether direct labor rates are subject to a Forward Pricing Rate Agreement (FPRA) with the Government. If so, the Offeror shall attach a copy of the FPRA as Attachment (1) to the Volume III - Cost Proposal.

(i)   If the Offeror is aware of differences between DCAA recommended rates and those rates proposed, the Offeror shall identify the specific rates and explain the differences. This includes labor rates, indirect rates, material burdens, and G&A rates.

(j)   State the escalation rate use for each year and the basis for this particular rate. Escalation shall not be applied to labor categories listed on the Department of Labor (DOL) Wage Determination.

(k)   The cost proposal must furnish an explanation of the Offerors "company policy" on the accumulation of costs for vacations, sick leave, holidays, and other compensated leave or time off.

(l)   Describe how the Offeror treats, for accounting purposes, the costs of employee training and whether such training occurs during the normal workweek or outside the normal workweek. Also, the Offeror shall define how Government-sponsored training costs are kept separate from contractor-training costs.

(m) It is recognized that some of the labor category titles used in the RFP may not exactly match the titles normally used in particular company operations. Accordingly, in order to permit a rapid comparison between the labor team proposed in response to this RFP and the Offerors actual labor mix, each proposal must provide the following:

(i)   Direct labor rates related to the labor categories specified in the RFP.

(ii)   A statement of the Offerors normally used nomenclature for each labor category included herein, together with a copy of the Offerors own position description for each labor category.

(iii)   A statement of any other labor categories and related qualifications between any category established herein and the category normally used.

A cross-reference matrix of labor category nomenclature must be provided.

(n)   If the Offeror is NOT proposing uncompensated overtime, so state. If the Offeror is proposing uncompensated overtime, 52.237-10 IDENTIFICATION OF UNCOMPENSATED OVERTIME (OCT 1997) applies.

(o)   Define and explain the rationale for all burdens that will be applied to material. Explain how material rebates, incentives, or other inducements provided to the Offeror will be treated.

(p)   Indicate any other proposed indirect rate(s) for each year and the base to which the rate is applied.

(q)   Specify proposed General & Administrative (G&A) rate(s) for each year. Indicate the base to which the rate is applied.

(r)   If an Offeror elects to claim facilities capital cost of money as an allowable cost, the Offeror must submit the calculation of the proposed amount on a DD Form 1861, Contract Facilities Capital Cost of Money, or computer generated equivalent with the

applicable cost of money base and rates displayed. Failure to complete all necessary information may result in delay in analysis and delay in contract award. In addition, the Offeror must provide the percentages for the Distribution of Facilities Capital Employed by land, buildings, and equipment. Current Department of the Treasury Rates is available at http://www.publicdebt.treas.gov/opd/opdprmt2.htm.

(s)   Provide an explanation of how your spreadsheet is constructed.

(t)   Each subcontractor must submit a statement indicating whether the release of pricing assistance data results to the Prime Contractor is allowed or prohibited. The Offerors are required to provide an assessment and determination that the cost proposed by any subcontractor is fair and reasonable (FAR 15.404-3).

(u)   Offerors will submit a total compensation plan setting forth salaries and fringe benefits proposed for the professional employees who will work under the contract. Current annual salary is required only if the employee is currently employed by the Offeror or subcontractor. If the employee is a contingency hire, the Offeror or subcontractor must include the agreed to annual salary of the prospective employee. The compensation plan for new employees may be estimated, but shall be consistent with the Offeror's overall proposal. See FAR Clause 52.222-46 "Evaluation of Compensation for Professional Employees (FEB 1993)"of Section M of this RFP.

(v)   Yearly Breakout: Each Offerors Cost Proposal shall be prepared based on the number of labor hours by labor category, travel, and material estimates set forth below under the heading "For Proposal Preparation Purposes Only" herein. Also, indicate how burden and G&A rates, and any other indirect rates are developed, by listing costs included in these indirect cost items.

The quantities of hours of labor for each labor category set forth under the heading "For Proposal Preparation Purposes Only" herein, are to be used by the Offeror for computing total labor costs and represent the Government's current best estimate of requirements. However, the Government can not guarantee either the estimated quantities of labor hours shown for individual labor categories or the total estimated labor hours for the entire period of contract performance (5 years).

All Offerors are to submit their cost proposal in accordance with the following instructions and sample/example contained in Attachment (1) hereto. All cost proposals are to be prepared using Microsoft Excel (Office 97 preferably--any later version of Microsoft Excel is NOT ACCEPTABLE).

Attachment (1) Excel spreadsheet is for an example only. The amounts shown in the sample spreadsheets are for illustration only. Do not propose these numbers.

THE PRIME CONTRACTOR SHALL SUBMIT ITS PROPOSAL ON WHITE BOND PAPER ONLY along with as many 3.5" high density disks (appropriately labeled as to content) as needed for the entire cost proposal (prime and subcontractor(s), if applicable).

Only one set of 3.5" disks need be submitted. Each proposal, prime and.-subcontractor, is to be prepared in accordance with the following instruction and sample.

EACH PROPOSED SUBCONTRACTOR IS TO PREPARE A COST PROPOSAL SPREADSHEET IN THE SAME FORMAT AS PRESENTED HERE. If a proposed subcontractor does not want to disclose detailed pricing information to its prime contractor, then the subcontractor shall submit complete cost proposal spreadsheets, as set forth in these instructions, directly to the contract specialist identified. However, the prime shall indicate in its proposal the subcontract costs as disclosed to the prime by the subcontractor. If a prime contractor has a subcontractor(s), then each subcontractor(s) proposal shall be prepared and submitted on bond paper OTHER THAN WHITE, and the color selected per subcontractor shall be consistent throughout the cost proposal. In the narrative portion of the cost proposal, the prime contractor shall identify each proposed subcontractor and the color associated with that subcontractor(s) proposal. When the subcontractor(s) submits its detailed cost proposal in accordance with this instruction, it shall submit its cost proposal on the same color paper that the prime has identified to the Government in its cost proposal narrative as being associated with that subcontractor.

Each spreadsheet is to have the following information:
    Company Name
    City, State, Zip
    Solicitation Number
    Work Site (Location)
    Element/Category

Direct Labor - Each spreadsheet is to list by title, the labor categories that the Offeror intends to use for performance of the contract and number of labor hours proposed. Offerors shall use their labor category nomenclature for each category title and shall use the labor hours per category per year as set forth in this section under the heading "For Proposal Presentation Purposes Only". A formula shall be written that multiplies proposed labor hours by proposed labor rates, with the resultant amount indicated in the amount column. The appropriate total number of hours is provided under the heading "For Proposal Preparation Purposes Only". The sample provided lists all labor categories identified for performance of this contract. If additional lines are required, the Offeror is to adjust the sample spreadsheet accordingly. However, the Offeror is cautioned and reminded that any adjustments to an individual spreadsheet cost proposal, (i.e., addition/deletion of lines) needs to be reflected on all spreadsheets, as all spreadsheets shall be linked. A suggestion would be for the Offeror to develop a generic cost proposal spreadsheet that reflects ALL of the intended labor categories.

Composite rates are required for any labor category under each type of services category in which more than one individual is proposed. These composite rates should properly weight individual labor rates (included in the composite) based on calculated percentages of the effort to total effort. The proposal shall clearly demonstrate the individual elements from which the composite rate is developed. Prime contractors and subcontractors can have their own composite rates.

The Offeror should also identify all labor categories subject to the Service Contract Act and identify what category on the Wage Determination applies to the contractor's employees. The direct labor rate (unburdened) paid to each non-exempt employee should be listed next to the contractor's labor category.

The cost proposal spreadsheets shall use the Offeror's labor category nomenclature.

Subtotal Direct Labor- A formula that adds all direct labor amounts shall be written with the resultant calculation indicated.

Labor Overhead - The Offeror is to indicate the base amount that is used to apply the labor overhead rate. If more than one labor overhead rate is proposed, or if Offeror has other indirect labor rate(s), i.e., separate fringe benefits rate(s), Offeror is to so indicate in the cost proposal spreadsheet, along with the base amount. A formula shall be written that multiplies the base amount(s) by the proposed labor overhead rate(s) and shall indicate the result in the amount column.

Subtotal Labor Overhead - A formula that adds all labor overhead amounts shall be written with the resultant calculation indicated.

Total - A formula shall be written that adds the subtotal amounts for direct and labor overhead with the resultant calculation indicated.

Total labor hours - A formula shall be written that adds all proposed direct labor hours proposed for performance of this contract.

Other Direct Costs - The Offeror is to include the following:

- Material/Supplies Costs. The Offeror is to use the estimates provided by the Government for this category. Fee is prohibited for Material/Supplies Costs.
- Travel Costs. The Offeror is to use the estimates provided by the Government for this category. Fee is prohibited for Travel Costs.
- Associates/Consultant Costs. The Offeror is to use the estimates provided by the Government for this category. Fee is prohibited for Consultant Costs.

Material handling (or other overhead, if applicable) - The Offeror is to indicate the base amount that is used for this indirect rate, if applicable. If more than one indirect rate is proposed, the Offeror is to indicate this in the cost proposal spreadsheet, along with the base amount. A formula shall be written that multiplies the base amount(s) by the proposed indirect rate(s) and shall indicate the result in the amount column.

Grand Sub total - A formula shall be written that adds the totaled amount for labor and overhead to totaled amount for Other Direct Costs and material handling, or other indirect rate, if applicable and the result shall be indicated in the amount column.

G&A - The Offeror is to indicate the base amount that is used to apply the general and administrative (G&A) rate. If more than one G&A rate is proposed, or if the Offeror has other indirect rate(s), the Offeror is to so indicate in the cost proposal spreadsheet, along with the base amount to which any G&A rate is applied. A formula shall be written that multiplies the base amount(s) by the proposed G&A rate(s) with the resultant amount indicated in the amount column. In the narrative portion of Offeror s cost proposal, Offeror is to state the base(s) for application of G&A(s) rate(s).

Subtotal - A formula shall be written that adds the amounts for G&A. If Offeror has only one G&A, then the formula written shall so reflect. If Offeror has more than one G&A amount, then the formula shall add the G&A amounts and that amount shall be displayed.

Total - A formula shall be written that adds the subtotaled amount for G&A with the grand subtotal.

Facilities Capital Cost of Money (FCCM) (If Applicable) - The Offeror is to indicate the base amount that is used to apply facilities capital cost of money factors, if applicable. A formula shall be written that multiplies the base amount(s) by the proposed facilities capital cost of money rate(s) and the result(s) indicated in the amount column.

Subtotal - A formula shall be written that adds the subtotal amount for Cost of Money, if applicable.

Fee - A formula shall be written that excludes FCCM (if applicable) from the grand subtotal, then the formula shall add the fee amount and that amount shall be displayed.

NOTIFICATION TO OFFERORS REGARDING SUBCONTRACTOR FEE:

Offerors are hereby notified that all fees to be paid under this contract will be paid to the prime contractor for disbursement to their subcontractor. No subcontractor proposal shall contain an amount for fee. The prime contractor shall arrange the manner which the company will distribute fee to each subcontractor. The Government will not be involved in the distribution of fee to subcontractors.

Offeror is to copy all formulas used in the preparation of its cost proposal into columns that the Offeror shall label "DCAA" and "Government Cost Realism". The Government will use these columns to analyze the Offeror's proposal in conjunction with information received through DCAA. By having the contractor provide the methodology by which it developed its proposal, the Government will ensure that it analyzes and calculates these costs in the same manner that the Offeror has prepared its proposal.

DO NOT LOCK ANY CELLS. LOCKED CELLS WILL MAKE IT DIFFICULT FOR THE GOVERNMENT TO EVALUATE YOUR COST PROPOSAL.

FOR PROPOSAL PREPARATION PURPOSES ONLY:

The Government has identified certain labor, travel, and material/ODC amounts to be used by all Offerors in preparing their cost proposals as set forth herein.

1.   Anticipated Award Date-The anticipated award date for this requirement will be in **4th Quarter Fiscal Year 2003**. This information is provided for use as a basis for schedules and burden (labor, overheads, G&A, etc.) mid-point calculations.

2.   Estimated Labor Hours / - The quantities of direct labor hours by labor category by period of contract performance, shown below, are to be used by the Offeror for computing estimated labor costs and is the Government's best estimate. The Government can not either guarantee the estimated quantities of labor hours shown for individual labor categories or the total estimated labor hours for any period of contract performance.

Labor Category	Base Year	Option Year 1	Option Year 2	Option Year 3	Option Year 4
	12 Months	12 Months	12 Months	12 Months	12 Months
Program Manager (K)	2700	2700	2700	2700	2700
Senior Scientist (K)	1800	1800	1800	1800	1800
Senior Engineer (K)	4800	4800	4800	4800	4800
Engineer	7680	7680	7680	7680	7680
Junior Engineer	5760	5760	5760	5760	5760
Analyst	4800	4800	4800	4800	4800
Junior Analyst	4800	4800	4800	4800	4800
Instrumentation Technician	9600	9600	9600	9600	9600
Technical Writer	3600	3600	3600	3600	3600
Engineering Technician	6080	6080	6080	6080	6080
Technician	9600	9600	9600	9600	9600
Assembler	6080	6080	6080	6080	6080
Clerk/Administrative Assistant	1920	1920	1920	1920	1920
Totals	**69,220**	**69,220**	**69,220**	**69,220**	**69,220**

3.   ODC's - Offerors are instructed to use the travel, and material, as specified below, to generate their cost proposals. If the contractor contemplates charging directly to this contract, any other direct costs besides the travel, and material defined herein, they must include an explanation and estimate of such costs in their proposal. This includes acquisition, lease, depreciation, usage charges, etc. of any Government Property, office equipment or Automated Data Processing Equipment.

ODC's	Base	Option 1	Option 2	Option 3	Option 4
Associates/Consultants (Not-to-exceed)*	$287,500.00	$287,500.00	$287,500.00	$287,500.00	$287,500.00
Travel (Not-to-exceed)*	$57,500.00	$57,500.00	$57,500.00	$57,500.00	$57,500.00

Materials/Supplies (Not-to-exceed)*	$914,940.00	$914,940.00	$914,940.00	$914,940.00	$914,940.00

*Inclusive of G&A, non-fee bearing

REALISM OF COST PROPOSALS

An Offeror's proposal is presumed to represent his best efforts to respond to the solicitation. Any inconsistency whether real or apparent, between promised performance and cost should be explained in the proposal. For example, if the intended use of new and innovative production techniques is the basis for an abnormally low estimate, the nature of these techniques and their impact on cost should be explained. Additionally, if a corporate policy has been made to absorb a portion of the estimated cost, that should be stated in the proposal and the contract will include a clause, which requires the Offeror to absorb that portion of costs, reflected in its cost proposal.

Any significant inconsistency if unexplained, raises a fundamental issue of the Offeror's understanding of the nature and scope of the work required and of his financial ability to perform the contract, and may be grounds for rejection of the proposal. The burden of proof as to cost credibility rests with the Offeror.

VOLUME IV Small Business Subcontracting Plan- (This factor only applies to other than small businesses) No page limit.

Large Business Offerors shall submit a Small Business Subcontracting Plan, it should address all eleven items cited in FAR 52.219-9 (Oct 2000) (see also 252.219-7003 (April 1996)). The plan will not be subject to merit evaluation it will be pass/fail only. Offeror's subcontracting plan shall become part of any resultant contract.

The proposed Small Business Subcontracting Plan will be reviewed to ensure that the contractor meets or exceeds the minimum requirements set forth by the Navy. The Navy's subcontracting goals for this requirement are 23% of the effort for Small Businesses; 5% of the effort for Small Disadvantaged Businesses; 5% of the effort for Small Women-Owned Businesses; 3% of the effort for Service Disabled Veteran-Owned Businesses; and 3% of the effort for HUBZone Businesses. Offerors submitting Small Business Subcontracting Plans per FAR clause 52.219-9 "Small Business Subcontracting Plan" (Oct 2000) and DFARS clause 252.219-7003, "Small, Small Disadvantaged and Women-Owned Small Business Subcontracting Plan (DOD Contracts)" (April 1996) which reflect a Small Disadvantaged Business (SDB) goal of less than five percent shall also provide, as a part of the subcontracting plan submission, those extenuating circumstances of why a five percent SDB goal cannot be proposed. Offerors should also note that submission of the Subcontracting Plan shall be concurrent with the submission of the Offeror's proposal.

IHD 211 - SECTION M BEST VALUE EVALUATION AND BASIS FOR AWARD (FFP) (MAR 2000) (NAVSEA/1HD)

1. The contract resulting from this solicitation will be awarded to that responsible Offeror whose offer, conforming to the solicitation, is determined most advantageous to the Government price and other factors considered. The Offeror's proposal shall be in the form prescribed by this solicitation and shall contain a response to each of the areas. Proposals will be evaluated and rated against the factors listed below, in descending order of importance:

Technical Proposal
Past Performance
Cost/Price
Small Business Subcontracting Plan

With respect to technical proposal, past performance and price, the Government is more interested in obtaining technical excellence and superior performance than lowest price. In determining best overall value, the Government will first assess an Offeror on the basis of Technical proposal and then compare and rank Offerors on the basis of past performance. Then the Government will compare the tradeoffs between relative margins of technical ranking, performance and price. The offer who represents the best value will be the Offeror who represents the best tradeoff between technical excellence, superior performance and price.

A. TECHNICAL PROPOSAL (In descending Order of Importance). The following technical factors shall be used to evaluate offers:

Experience
Micro-electromechanical Systems (MEMS) design capabilities
Radio Frequency Identification (RFID) reader design capabilities
Application Specific Integrated Circuit (ASIC) design capabilities
Test Capabilities

An Offeror is required to submit a technical proposal as detailed herein. Failure to do so will render an offer ineligible for award.

B. PAST PERFORMANCE

1. The Government will evaluate the quality of the Offeror's past performance. This evaluation is separate and distinct from the Contracting Officer's responsibility determination. The assessment of the Offeror's past performance will be used to evaluate the relative capability of the Offeror and their competitors to successfully meet the requirements of the RFP. Past performance of significant and/or critical subcontractors

ATTACHMENT (6)

will be considered to the extent warranted by the subcontractor's involvement in the proposed effort.

2. The Government will evaluate the quality of the Offeror's past performance. This may include any aspect of past performance that is related to this contract. A record of poor past performance may be considered an indication that the Offeror may be lacking in areas such as reliability, quality and customer satisfaction. In evaluating an Offeror's past performance, the Government will consider information contained in the Offeror's past performance references, information obtained from other sources, including past and present customers, subcontractors and any others who may have useful information, and other past performance data available to the Government. Offerors with no past performance history will receive a neutral rating.

a. The subfactors listed below (which are equal in importance) will be used to evaluate past performance:

i. Customer Satisfaction. The Offeror's demonstrated commitment to maintaining an acceptable level of performance and customer satisfaction. .

ii. Timeliness. The Offeror's demonstrated ability to meet contract schedules and delivery dates.

iii. Reliability. The Offeror's demonstrated ability to conform to contract requirements.

iv. Program Management. The Offeror's ability to meet or exceed its subcontracting plans.

v. Product Quality. The Offeror's demonstrated ability to conform to contract specification requirements.

3. Contracting Officers will use the following adjectival definitions as guidelines in evaluating past performance:

Excellent - The Offeror's performance was consistently superior. The contractual performance was accomplished with minor problems, to which corrective action taken by the contractor was highly effective.

Good - The Offeror's performance was better than average. The contractual performance was accomplished with some minor problems, to which corrective actions taken by the contractor were effective. They would be willing to do business with the Offeror again.

Average- The Offeror's performance was adequate. The contractual performance reflects a problem, to which the contractor has not yet identified corrective actions. Consideration would take part in awarding a contract to the Offeror again.

Poor - The Offeror's performance was entirely inadequate. The contractual performance of the element being assessed contains problems, to which the contractor's corrective actions appear to be or were ineffective. They would not do business with the Offeror again under any circumstances.

Neutral - Offerors lacking relevant past performance history will receive a neutral rating for past performance.

The Offeror must provide the information requested above for past performance evaluation or affirmatively state that it possesses no relevant directly related or similar past performance. An offer that fails to provide the past performance information may be considered ineligible for award.

C. COST/PRICE

Price/Cost will be evaluated for the base year and all option years. The price/cost proposal shall be evaluated to determine fairness, reasonableness, and compliance with the Wage Determination provided. In addition, proposed rates for each labor category covered by the Service Contract Act shall be evaluated for compliance with the minimum monetary wages and fringe benefits set forth in the Wage Determination. The realism of prices will be evaluated.

The Cost Realism evaluation will result in a determination of the most probable cost to the Government. This evaluation may include consideration of actual salaries being paid for similar work under other contracts, the Independent Government Estimate (IGE), Defense Contract Audit Agency audit information, and evaluation of compensation for professional employees. The labor hours, travel, and material/ODC amounts (plus any applicable burden) specified in Section L will be utilized for evaluation purposes. For evaluation proposes only, the evaluated cost is the higher of either (a) the sum of the Offeror's proposed total estimated cost and fee or (b) the Government's determination of the most probable total cost and fee.

Cost realism pertains to the Offeror's ability to project costs which are reasonable and which indicate that the Offeror understands the nature of the work to be performed. Any understatement or overstatement of costs, whether in labor hours, labor rates, overhead rates and other direct costs, may be considered a reflection of lack of understanding of the work required and may be considered in the technical analysis, which could reduce the capability analysis.

Cost is not the most important evaluation factor; it will not be ignored. Prospective Offerors are forewarned that a proposal meeting solicitation requirements with the lowest evaluated cost may not be selected if award to a higher evaluated cost Offeror is determined to be most advantageous to the Government.

D. SMALL BUSINESS SUBCONTRACTING PLAN

The subcontracting plan shall be evaluated separate and distinct from all other capability subfactors. It will be evaluated to insure the Offeror has a plan that complies with the Navy's stated goals or that the Offeror has provided an explanation as to why those goals cannot be met. The Contracting Officer may, pursuant to FAR 15.306, conduct exchanges of information with respect to subcontracting plan issues only and these exchanges of information shall not constitute discussions as defined in Part 15 of the FAR.

II. The Government may award a contract on the basis of initial offers received, without discussions. Therefore, each initial offer should contain the Offeror's best terms from a cost/price, technical and past performance standpoint. However, if considered necessary by the contracting officer, discussions will be conducted only with those Offerors determined to have a reasonable chance for award.

METHODOLOGY

The Offerors' submission in response to Factors 1, 2, 3, 4, and 5 shall be reviewed by the technical review team. Each factor shall be reviewed based on the merits of the information contained in the Offerors' submission. The technical review team will only examine technical material contained within Volume I. Each factor shall be reviewed and assigned a score for each of the following areas:

Factor 1- Experience
Factor 2 – Micro-electromechanical Systems (MEMS) design capabilities
Factor 3 – Radio Frequency Identification (RFID) reader design capabilities
Factor 4 – Application Specific Integrated Circuit (ASIC) design capabilities
Factor 5 – Test Capabilities
Factor 6 - Past Performance
Factor 7 - Cost/Price

Once all evaluations are complete the corresponding scores shall be tabulated and placed in a chart as follows in this example:

Offeror	Factor 1, 2, 3, 4, and 5 Score*	Past Performance Rating	Cost/Price
A	88	Excellent	$47M
B	93	Excellent	$48M
C	0**	Good	$43M
D	82	Excellent	$41M
E	93	Poor	$39M

* Not to exceed 100
** Offeror did not comply with RFP instructions, such as failing to submit a complete Volume I - was not evaluated

Once this information is tabulated, Offerors will be compared making value and price tradeoffs and award will be made to the Offeror that represents the Best Value to the

Government. If the Offeror with the highest scores also represents the lowest price then that Offeror is likely to be the Best Value. If an Offeror with higher scores has a higher price, then a determination must be made whether the difference in value is worth the higher price. In the example the Government would determine whether Offerors A, B, D, or E represent the best value. Offerors B and E have the highest Factor 1, 2, 3, 4 and 5 score, but Offeror E has the lowest past performance. If it could be determined whether Offeror B's technical score represents a greater value than Offerors A and D's score, then Offeror B may be considered the best value, even though Offeror B has a higher cost. Offeror E, even though reflective of a high technical score would not be considered the best value based on the combination of scores received for the evaluation factors. Offeror C did not comply with the instructions as stated in the solicitation and therefore received a low technical score. As the technical evaluation is the most important factor the Government has determined that Offeror C does not represent the best value in regards to the evaluation factors.